CHAPTER 7
Quality Assurance (QA) Division and Quality Programs

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CHAPTER 7
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7.1 Quality Assurance (QA) Division

7.1.1 Quality Assurance (QA)

7.1.1.1 QA is a relatively small group of highly skilled personnel. The permanently assigned personnel under the QA Officer are responsible for conducting and managing the department's QA effort. The maintenance personnel assigned to QA are known as QARs. Figures 7-1 and 7-2 show standard QA organizations for O-levels and FRC sites ashore. Figure 7-3 shows standard QA organizations for O-level maintenance, including certain detachments with four or less aircraft, and OMDs. Figure 7-4 provides a basic standard organization for combined OMDs, FRC sites and aircraft IMAs ashore and AIMD afloat.

7.1.1.2 While it is recognized the detailed functions of QA as described in this chapter may not be appropriate in some activities, such as certain detachments with four or less aircraft and OMDs, the basic precepts of ensuring quality workmanship prevail. To apply QA principles to the operation of small detachments which do not elect to organize like Figure 7-3, a QAR shall be designated. This person is responsible for monitoring the quality of maintenance performed and signing either manually or electronically all maintenance forms requiring the signature of a QAR. Detachment QARs are not required to actually do an inspection, but shall witness the accomplishment of an inspection when they sign as the QAR. This signature means all QA requirements were met and they or a CDI have accomplished the inspection or series of inspections. Sufficient numbers of detachment maintenance personnel will be designated as CDIs.

7.1.1.3 The number of personnel assigned to QA will vary among activities in relationship to the size of the unit and number of work shifts. However, sufficient personnel will be assigned to provide coverage of the billets as shown in the organizational charts. When OMDs and other authorized activities or detachments elect to organize like Figure 7-3, a permanent QA Officer and a permanent QA Supervisor shall be assigned. These assignments may be combined with other staff functions as authorized in Chapter 3. QA supervisors may be designated as QARs or CDQARs in their areas of technical expertise. Personnel from the 300 Division who meet the qualifications listed in this chapter may be designated as permanent CDQARs to assist the QA Supervisor in performing QA functions. Additional qualified personnel may be designated as CDIs to perform QA functions.

7.1.1.4 HM squadrons with two maintenance departments, Aircraft and Airborne Mine Countermeasures Systems, will have a single QA Division under the cognizance of the Aircraft Maintenance Department. The QA Division will be equally responsible to both departments for the accomplishment of all functions directed by this instruction.

7.1.1.5 This chapter also applies in principle to the Weapons Department concerning the AWSE in its subcustody. Unlike the IMA/FRC, the Weapons Department will integrate the QA functions into the existing organizational structure instead of establishing an independent QA Division. Supervisory personnel must recognize this distinction in applying the provisions of this chapter to the Weapons Department AWSE maintenance effort. As determined by mission and workload, some weapons departments have a billet authorized for a data analyst. For those without such a billet, IMAs/FRCs must provide the services of a data analyst (as appropriate).

NOTE: Reference to the IMA/FRC QA Division is also to be applied to the QA function within the Weapons Department. Similarly, references to the IMA/FRC QA Officer shall equate to the person in the Weapons Department responsible for direct supervision of the QA function as it applies to AWSE maintenance.

7.1.2 Concepts of Quality Assurance (QA)

7.1.2.1 The QA concept is fundamentally the prevention of the occurrence of defects. The concept embraces all events from the start of the maintenance operation to its completion and is the responsibility of all maintenance personnel. The achievement of QA depends on prevention, knowledge, and special skills.

7.1.2.1.1 The principle of prevention is that it is necessary to preclude maintenance failure. This principle extends to safety of personnel, maintenance of equipment, and virtually every aspect of the total maintenance effort. Prevention is about regulating events rather than being regulated by them.

7.1.2.1.2 Knowledge is derived from factual information. Data collection and analysis are ways to acquire such knowledge.

7.1.2.1.3 Special skills, not normally possessed by production personnel, are required of a staff of trained personnel for the analysis of data and supervision of QA.

7.1.2.2 The terms inspection, QA, and audit have separate and distinct meanings and should be used accordingly.

7.1.2.2.1 Inspection is the examination/testing of supplies (including raw materials, documents, data, components, and assemblies) and services to determine if they conform to technical requirements.

7.1.2.2.2 QA is a planned and systematic pattern of actions necessary to provide adequate confidence, the product will perform satisfactorily in service, and the monitoring and analyzing of data to verify the validity of these actions.

7.1.2.2.3 Audit, as it applies to QA, is a periodic or special evaluation of details, plans, policies, procedures, products, directives, and records.

7.1.2.3 QA provides a systematic and efficient method for gathering, analyzing, and maintaining information on the quality characteristics of products, the source and nature of defects, and their immediate impact on the current operation. It permits decisions to be based on facts rather than intuition or memory and provides comparative data which is useful long after the details of the particular time or events have passed. The objective of QA is to readily pinpoint problem areas in which management can:

   a   Improve the quality, uniformity, and reliability of the total maintenance effort.

   b.   Improve the work environment, tools, and equipment used in the maintenance effort.

   c.   Eliminate unnecessary man-hour and dollar expenditures.

   d.   Improve training, work habits, and procedures of maintenance personnel.

   e.   Increase the excellence and value of reports and correspondence originated by maintenance personnel.

   f.   Effectively disseminate technical information.

   g.   Establish realistic material and equipment requirements in support of the maintenance effort.

   h.   Support NAMDRP.

   i.   Support the FOD Prevention Program.

7.1.2.4 Team work must be achieved before benefits can be obtained from QA. Personnel in the department must use an optimum degree of personal judgment for quality in the course of their daily work. QA techniques supply each person, from the worker to the CO, with information on actual quality standards, goals, and achievements. This information provides a challenge to individuals to improve the quality of their work. The resultant recorded knowledge can encourage the best efforts of all personnel.

7.1.3 Responsibility for Quality in Maintenance

7.1.3.1 COs are responsible for the inspection and quality of material under their cognizance. Generating high standards of quality in a maintenance organization demands a sincere interest on the part of the CO which must be evident to everyone in the command.

7.1.3.2 Attaining quality in maintenance and the prevention of maintenance errors is an all hands task that can only be accomplished through positive leadership, proper organization, and a complete understanding of responsibilities by each individual in the department. QA requirements, functions, and responsibilities specified in this instruction provide a sound basis for conducting an effective QA.

7.1.3.3 QA is a staff function which requires both authority and assumption of responsibility. Direct liaison between QA and production divisions is a necessity and must be energetically exercised. Although the QA Officer is responsible to the MO for the overall quality of maintenance within the department, division officers and work center supervisors are duly responsible for ensuring required inspections are conducted and high quality workmanship is attained.

7.1.4 Quality Assurance (QA) Responsibilities

7.1.4.1 Specific QA responsibilities are:

    a.   Maintain the CTPL for the department, including TDs, control classified technical publications for the department, and ensure each dispersed TPL receives all publications applicable to each work center and these are kept current and complete.

    b.   Establish qualification requirements for QARs, CDQARs, and CDIs. Review the qualifications of personnel nominated for these positions and endorse nominations to the Department Head. FRC QA officers at both sending and receiving sites shall collectively work to ensure that the upkeep of training, task and special process certification, and licensing requirements of artisans are maintained and accurate by the parent FRC per local instructions.

    c.   Periodically (at a minimum annually), accompany CDIs during scheduled maintenance and unscheduled maintenance tasks to recheck their qualifications.

    d.   Ensure all work guides, checkoff lists, check sheets and MRCs used to define and control maintenance are complete and current prior to issuing to crews or individuals.

    e.   Verify MRCs are entered into the NALCOMIS OMA or SESS database as changes occur to the MRC decks. The MRC tasking will be pushed down from the Baseline Manager for activities with NTCSS Optimized NALCOMIS activities. Baseline managers shall provide notification to all NTCSS Optimized NALCOMIS activities of changes to the baseline. MRC taskings that are pushed down will not be activated by activities until receipt of the actual MRCs.

    f.   Review **R}** all unit DRs to ensure they are accurate, clear, and concise, prior to submission via JDRS (https://jdrs.mil) (Chapter 10, paragraph 10.9). Units may only use non-JDRS reporting methods if web site connectivity is unavailable. IMA/FRCs shall receive copies of all the reports and requests listed above which concern AWSE and are originated by the Weapons Department. The ASO shall receive copies of all HMRs.

g.   Perform inspections of all maintenance equipment and facilities to ensure compliance with fire and safety regulations. In conjunction with semi-annual work center audits, check for the existence of satisfactory environmental conditions within the work spaces and that equipment is maintained in a safe operating condition. Check that equipment operator qualifications and proper training for licensing is maintained.

h.   Provide a continuous training program in techniques and procedures pertaining to the conduct of inspections. When directed or required, provide technical task forces to study trouble areas and submit recommendations for corrective action.

i.   Use information from MDRs, including NALCOMIS reports/inquiries in developing discrepancy trends, to identify failure areas or other maintenance problems.

j.   Review source documents and periodic inspection records, and note recurring discrepancies requiring special action.

k.   Maintain liaison with contractors via the COR, NATEC, ISSC, COMNAVAIRSYSCOM, and other available field technical services. Establish and maintain liaison with other maintenance and rework activities to obtain information on ways for improving maintenance techniques, quality of workmanship, and QA procedures.

l.   Obtain and use inspection equipment, such as lights, borescopes, mirrors, magnifying glasses, tensiometers, pressure gauges, and carbon monoxide testers. Ensure production personnel have such equipment available, in operating condition, calibrated, if applicable, and in use.

m. Ensure established standard procedures are observed for conducting scheduled and unscheduled inspections, ground tests, and bench check of components, including engines.

n.   Ensure check pilots and aircrew are briefed before post maintenance FCFs so the purpose and objectives of the flight are clearly understood. After completion of the FCF, debrief the check pilots, aircrew, maintenance control representative, and applicable work center representatives to determine compliance with objectives outlined on the FCF checklist and clarify discrepancies noted. Completed FCF checklists shall be retained in the aircraft history files for a minimum of 6 months, or one phase cycle, whichever is greater.

o.   Ensure the configuration of aircraft and components is correct and all essential modifications have been incorporated. This requires reviewing appropriate logbooks and records or CM ALS.

p.   Ensure the configuration of aeronautical components and SE is correct and all essential modifications have been incorporated.

q.   Ensure an inspection is conducted on all equipment received for use, returned for repair, or held awaiting repair to verify satisfactory material condition, identification, packaging, preservation, and configuration; and when applicable, shelf-life limits are not exceeded.

NOTE: I-level QA shall conduct an investigation with the repairing work center and make recommendations for parts, components, and assemblies inducted by AMSU with a When Discovered Code Y using Y-Code Process Form (Figure 7-9). Ensure inducting activity is notified of the investigation results. If the component was not previously processed RFI by the same activity, forward recommendations to the last repair activity. When Y-Coded discrepant equipment is received at an FRC site, the host QA shall ascertain if a depot artisan participated in the repair of the subject equipment, and, if necessary, notify the depot artisan for action or assistance with the discrepancy investigation. The parent depot QA will be notified to either assist or assess the investigation results to determine the need for further action at the IMA or the parent FRC. Completed forms shall be retained on file in QA for one year. QA shall

establish and maintain a log to assign a report number to each Y-Code Report. The report number shall consist of the two-digit calendar year and a sequential serial number, for example, 03-007. The logbook shall contain, at a minimum, the following information: report number, calendar date, QAR assigned, work center, P/N, and S/N.

   r.   Review all incoming technical publications and directives to determine their application to the Maintenance Department.

   s.   Maintain current assignments of personnel qualified for specific QA responsibilities. If on NALCOMIS OMA, verify user LOGIN IDs against SMQs to ensure only qualified personnel have QAR/CDI SMQs. If on NALCOMIS IMA, the NALCOMIS Personnel Management Subsystem performs this function for NALCOMIS activities. On-screen inquiries can be made and hardcopy Personnel Management Reports requested listing personnel with specific QA responsibilities.

   t.   Maintain current assignments and roles (initiators, submitters, and view-only) per Chapter 10, paragraph 10.9, for personnel with authorized access to **R}** JDRS (https://jdrs.mil).

   u.   Ensure compliance with NAMPSOPs (Chapter 10).

7.1.4.2 To comply with assigned responsibilities, QA personnel shall perform mandatory QA inspections as specified in the MIMs, PMRCs, and TDs.

NOTE: QA Officers at FRC sites shall ensure BCM interdicted workload identified as Mandatory Verification requirements are performed "ONLY" by an FRC QA Specialist, unless otherwise directed by higher authority.

7.1.4.2.1 QA MRCs are provided for certain maintenance tasks that, if improperly performed, could cause equipment failure or jeopardize the safety of personnel. The QA appearing on MRCs signifies a QA function is required. Local commands using the criteria of this chapter shall determine and designate in writing, by annotating the master and work center decks, whether a QAR, CDQAR, or CDI shall perform the QA functions listed in the MRCs.

7.1.4.2.2 QA inspections performed during/after task performance will use the following criteria:

   a.   If the proper performance of a task cannot be determined after the task is completed, a QA inspection shall be required while the task is being performed. Work shall not proceed past the inspection point indicated on the task MRC without approval of the inspector. For these inspections, the notation "QA required" appears on the MRC containing the task.

   b.   If the proper performance of a task can be determined by a visual inspection after the task is completed, a QA inspection is required after the task completion.

7.1.4.3 To ensure QA inspection requirements are complied with during all maintenance evolutions, procedures are established within each work center. In developing procedures, inspections normally fall into one of the following categories:

   a.   Receiving or screening inspections apply to material, components, parts, equipment, logs and records, CM ALS, and documents. The inspections are normally conducted by CDIs to determine the condition of material, proper identification, maintenance requirements and disposition and accuracy of accompanying

records and documents. Issuance of raw material to artisans assigned to FRC sites performing repairs on non-critical safety items may be accomplished with the following guidance:

(1) Artisans assigned to FRC sites may use raw material procured by the FRC Material Control without subjecting the material to further analysis when accomplishing repairs and associated manufacturing of aviation repair parts per repair procedures or publications for non-critical safety items.

(2) Raw material stock procured in support of D-level repair of CDI workload shall be subjected to analysis as prescribed by the parent depot's Engineering Department. To ensure engineering analysis requirements are met, such CSI-Designated raw material shall be procured through the parent D-level FRC and delivered to the I-level FRC with analysis completed.

(3) The parent depot shall retain the analysis results per paragraph 7.2.6.3.4. The CSI material procurement requirements described herein only apply to D-level maintenance repair and processes being accomplished within the I-level FRC.

b. In-process inspections are specific QA functions required during the performance of maintenance requirements and actions where satisfactory task performance cannot be determined after the task has been completed. These inspections, when designated per paragraph 7.1.4.1b include, but are not limited to, witnessing application of **R}** hydraulic sampling, torque, functional testing, adjusting, assembly, servicing, and installation. In-process tasks will be built by QARs/CDIs into WOs for NTCSS Optimized OMA NALCOMIS upon receipt of a maintenance task that requires an in-process inspection.

NOTE: **Components repaired by artisans at I-level FRC sites that have multiple mandatory verification steps shall be individually documented using the in-process inspection function of NALCOMIS with the last verification step signifying complete when the INSPECTED BY field is signed off.**

c. Final inspections are specific QA functions performed following the completion of a task or series of tasks.

d. Only personnel designated as QARs, CDQARs, and CDIs are authorized to sign as inspector for a QA inspection requirement. All specified QA inspections shall be conducted, witnessed, or verified by designated QA personnel. In-process and final inspections are normally conducted by CDIs; however, QARs or CDQARs shall conduct in-process and final inspections of all tasks which require the aircraft to have an FCF per Chapter 5, regardless of whether or not an FCF is flown per type specific NATOPS manuals. QARs or CDQARs shall conduct in-process and final inspections of maintenance tasks performed on egress systems, personnel parachutes, and flotation devices when the affected mechanism or function of the equipment is not reinspected or functionally tested before flight. MOs shall determine which additional maintenance tasks require QAR or CDQAR level in-process and final inspections. All QA inspections conducted during the various phases of maintenance require a signature.

e. FRC site inspection policy shall determine if an artisan or appropriate I-level QA inspector (as applicable) will perform the final RFI maintenance action on BCM interdicted workload.

7.1.4.4 I-Level QA Inspection Certification. The MAF Inspected By field is completed using the Maintenance Activity Subsystem MAF clearing functions. These functions permit individuals with appropriate SMQs to document their inspection and approval of the repair action or, if necessary, reject the repair action.

7.1.4.5 D-level QA Certification by an Artisan at the I-level FRC. Artisans shall use NALCOMIS Optimized to document and certify work accomplished at the IMA locations assigned. Depot artisans working in an I-level FRC work center will continue to be authorized to certify their own work to the extent they are qualified by their parent depot and based on quality standards and enforcement authority formally agreed upon

by the FRC and MALS commanders. Depot artisans shall complete the INSPECTED BY and SUPERVISOR fields with their personal logon. Signing the INSPECTED BY field on the MAF/in NALCOMIS signifies certification. Signing the SUPERVISOR field indicates the MAF has been screened for accuracy and completeness and that QA and tool control requirements have been met.

NOTE: **Only a D-level QA specialist shall accomplish Type I verifications. MAFs with D-level FRC QA verification requirements shall be checked "QA REQUIRED". For assets requiring only a single verification step, this action shall be documented by signing the INSPECTED BY field.**

7.1.4.6 O-Level QA Inspection Certification

7.1.4.6.1 The Inspected By block on all VIDS/MAFs is signed/stamped by QA inspectors. This signing off or stamping of documents involving inspections is by the QAR, CDQAR, or CDI actually inspecting the work for proper standards.

7.1.4.6.2 The signing/stamping of documents which does not involve actual inspection, for example, a control document for a phase inspection and special inspections, need not be signed by a QA inspector. It is an administrative certification that all QA functions associated with the inspection have been performed by designated QA inspectors and all necessary documentation, for example, look and fix phase documents, have been received, reviewed, and accepted. An individual with administrative certification authority may sign the block.

7.1.4.6.3 If operating NALCOMIS OMA, the Inspected By field on the MAF or WO is intended to be used in the same manner as a VIDS/MAF signature. Use of this field is restricted to those personnel possessing the appropriate SMQ to perform QA inspections except in the case of a control document.

7.1.4.6.4 Under NALCOMIS in process QAR/CDI inspections will be documented using the In-process Inspection field.

7.1.4.7 Issue and Control of QA Stamps and NALCOMIS QA SMQs

7.1.4.7.1 QA stamps are not required at O-level activities. However, if local maintenance managers desire to use QA stamps, they are to be used by QARs and CDQARs only. These open purchase, numbered impression stamps which identify the inspector, must be used in place of signatures to certify completion of inspections on maintenance documents and also in place of initials where use of initials is specifically authorized. Stamps must be closely controlled by QA and adequate storage facilities provided. A stamp may not be reassigned within a period of 3 months. NALCOMIS activities shall assign SMQ passwords to all personnel designated as QARs, CDQARs, and CDIs.

7.1.4.7.2 I-level activities using NALCOMIS shall assign SMQ passwords to all personnel designated as QARs, CDQARs, and CDIs. QA stamp numbers shall be required for ALSS inspection records, calibration METER cards, and all non-NALCOMIS maintenance documents, for example, MAFs. These open purchased numbered impression stamps, which identify the inspector, will be used as required or as established by local policies. Stamps shall be closely controlled by QA and adequate storage facilities provided. A stamp may not be reassigned within a period of 3 months.

7.1.4.7.3 Artisans assigned TAD to I-level FRC sites shall receive NALCOMIS training from the activity's DBA Supervisor when directed by the FRC Department Head. Artisans assigned TAD shall use their assigned stamp issued by their parent FRC activity **R}** (when required). These stamps are subject to the same inventory and accountability requirements of the I-level FRC. When workload documentation requires stamp imprints, qualified artisans permanently assigned to I-level FRCs shall be issued a QA stamp by the receiving activity's QA Division.

7.1.4.7.4 NALCOMIS DBAs shall initiate a generic depot artisan logon to populate the MAF CORRECTED BY field for each depot artisan within the specific IMA work center. The DBA shall also grant CDI and

Supervisor SMQ access commensurate with the depot artisan's task certification and supervisory responsibility. For CDI SMQ assignment purposes, depot artisans are responsible for providing the QAO with evidence of task certification by using the Job Task Description Form and other certification documents (as applicable). The QAO will provide direction to the DBA (as applicable) to SMQ assignment.

7.1.4.8 Lead crimps used by O-level AME CDIs/CDQARs/QARs will be issued and controlled in the same manner as QA stamps.

7.1.4.9 Billet descriptions shall be prepared for QA personnel to ensure all QA functions and responsibilities are assigned. Billet descriptions assign specific functions and responsibilities, as required by this instruction, to those personnel assigned QA functions.

7.1.5 Quality Assurance Representatives (QARs)

NOTE: **QARs shall not inspect their own work and sign as inspector.**

7.1.5.1 QARs shall:

a.   Review incoming technical publications and directives to determine their application to the Maintenance Department.

b.   Assist in the certification of production personnel.

c.   Participate as members of technical task forces to investigate trouble areas and provide recommendations for corrective action.

d.   Review the qualifications of personnel nominated to become CDIs or CDQARs and provide appropriate recommendations.

e.   Review and investigate hazard reports, as defined in OPNAVINST 3750.6, received from other activities which may apply to the unit.

eA. **R}** Assist division officers and work center supervisors in the preparation of DRs, reviewing all entries for adequacy and correctness prior to MO approval.

f.   Provide technical assistance to CDIs and production personnel who are required to make QA decisions. Periodically accompany CDIs on inspections to evaluate their performance.

g.   Review MDRs/NALCOMIS Reports/Inquiries, MAFs, WOs, **R}** DRs, and hazard reports for discrepancy trends and specific problem areas in areas of responsibility.

h.   Provide technical assistance to the SA/A in review of the weekly summary of NTCSS Optimized OMA NALCOMIS baseline change reports. Verify that changes to a unit's database are current to the report. SA/A shall update these reports as necessary to ensure the unit's database is kept current. This report shall be maintained by the SA/A in Maintenance Control.

i.   Conduct final inspections upon completion of tasks requiring certification by QARs.

j.   Coordinate with the analyst to develop discrepancy trends and applicable charts and graphs necessary to depict quality performance.

k.   Comply with the applicable T/M/S conditional MRCs if flight control malfunctions occur.   If jammed flight control MRCs have not been published, refer to the ISSC message procedures or model manager local MRCs or comply with EI procedures (Chapter 10, paragraph 10.9).

l.   Ensure contractor and field maintenance teams are briefed about TCP and FOD Prevention Program requirements and report discrepancies to the TCP and FOD Prevention Program managers.

m.   Ensure each inspection includes an examination of the work area for sources of potential FOD.

n.   Maintain liaison with contractors via the COR, NATEC, COMNAVAIRSYSCOM, ISSCs, and other field technical services. Establish and maintain liaison with other maintenance and rework activities to obtain information for improving maintenance techniques, quality of workmanship, and QA procedures.

7.1.5.2 All personnel being considered for selection as QARs should:

a.   Be senior in grade and experience. This means a senior petty officer (E-6 or above) or SNCO, with a well rounded maintenance background. Rare and unusual circumstances may require the use of other than a senior petty officer or SNCO. Under these circumstances, the most experienced personnel available as determined by the MO, may be temporarily employed as QARs.

b.   Have fully developed skills and experience related to technical fields under their cognizance.

c.   Have the ability to research, read, and interpret drawings, technical manuals, and directives.

d.   Have the ability to write with clarity and technical accuracy.

e.   Promote stability and excellence in performance.

f.   Have the motivation and personal desire to develop greater knowledge of their technical specialty.

g.   Have an observant, alert, and inquiring nature.

h.   Have the ability to work with others.

7.1.5.3 MALS personnel assigned to another MALS in support of a deployed squadron, who have been designated as QARs at their parent command, may be designated as QARs by the deployed unit, provided they are recommended by the cognizant Division Officer and the QA Officer of their deployed unit. QARs meeting this criteria will only use QA stamps issued by the deployed unit.

7.1.5.4 The QA Officer will ensure personnel assigned to perform QA functions receive continuous training in inspecting, testing, and quality control methods specifically applicable to their area of assignment. The QA Officer will also ensure QARs receive cross training to perform those QA functions not in their assigned area. This training should include local training courses, OJT, rotation of assignments, PQSs, and formal schools. The QA Officer, QA Supervisor, and QARs shall complete the Naval Aviation Quality Assurance Administrative Procedures course (course D/E-555-0046). This course is highly recommended for CDQARs and CDIs.

NOTES: **1. Cross training is not permitted into the following: AME areas of egress systems or PR I-level areas of responsibility. Only qualified I-level personnel (graduates of approved PR school) will be permitted to pack, repair, or perform calendar inspections on personnel parachutes, drogue chutes (excluding drogue chutes in nonremovable head boxes), SSKs, and inflatable survival equipment. Cross training under provisions of Chapter 6 are permissible for PR O-level functions only. ALSS O-level and I-level areas of responsibility are outlined in NAVAIR 13-1-6 series manuals and shall be strictly followed.**

2. Refer to the Enterprise AIRSpeed web site (http://www.cnaf.navy.mil/airspeed) for a complete listing of billet specific AIRSpeed training requirements.

7.1.6 Collateral Duty Quality Assurance Representatives (CDQARs)

7.1.6.1 Although CDQARs are assigned to production work centers, they function in the same capacity as QARs and must meet the same qualifications. CDQARs may be assigned on a temporary or permanent basis.

NOTE: CDQARs shall not inspect their own work and sign as inspector.

7.1.6.2 Temporary CDQARs may be assigned under one of the following conditions:

a.   When temporary severe shortages of skills will not support the assignment of a QAR in one of the billets described in Figures 7-1 through 7-4. When CDQAR assignments are made due to severe shortages of skills, and these shortages have not been eased within 90 days, a letter shall be sent to the ACC/TYCOM via the chain of command. For Marine Corps activities, CMC (Code ASL-33) will be a "copy to" addressee, advising of the problems, action taken, and intent to continue the assignments. ACCs/TYCOMs will take appropriate action to authorize activities to continue or to curtail the assignment. The letter will contain name, rate or rank, NEC or MOS, and functional area.

b.   To relieve QARs during short periods of absence, such as leave, TAD, and hospitalization.

7.1.6.3 Permanent CDQARs may be assigned under the following conditions:

a.   To supplement multiple work shifts and detachments and to support in-process final inspection requirements in the egress and aircrew survival equipment areas provided all manning requirements of QA are satisfied (Figures 7-1 through 7-4).

NOTE: In no case will permanent CDQAR assignments be made when the applicable minimum requirements of Figures 7-1 through 7-4 have not been satisfied. For example, a temporary CDQAR assignment is made due to severe shortage of skills.

b.   For the aircrew personal protective/survival equipment billet.

c.   For the armament billet when the activity has minimal ordnance delivery in the assigned mission.

d.   For egress/environmental systems when the activity does not have ejection seats.

e.   For OMDs and certain other activities/detachments with four or less aircraft when organized per Figure 7-3.

7.1.7 Collateral Duty Inspectors (CDIs)

7.1.7.1 CDIs assigned to production or MTU work centers are to inspect all work and comply with the required QA inspections during all maintenance actions performed by their respective work centers. They are responsible to the QA Officer when performing such functions. CDIs will spot check all work in progress and will be familiar with the provisions and responsibilities of the various programs managed and audited by QA.

NOTE: CDIs shall not inspect their own work and sign as inspector.

7.1.7.2 QA shall establish minimum qualifications for personnel selected for CDI. Division officers and the Weapons Officer or the Weapons Department person responsible for QA are responsible for ensuring sufficient qualified personnel are nominated for CDI to comply with required QA inspections during all maintenance actions. Due to the importance and responsibility of duties performed by CDIs, it is imperative division officers and work center supervisors carefully screen all candidates for these assignments. CDI candidates will be required to demonstrate their knowledge and ability on the particular equipment by

successfully passing a written examination which is locally prepared and administered by QA. In addition to the written examination, a locally prepared oral or practical examination may be used.

7.1.7.2.1 When CDIs are transferred from a production work center, their designation as a CDI for the work center remains valid only as long as their qualifications are current, as judged by the cognizant Division Officer.

7.1.7.2.2 SEAOPDET personnel and MALS personnel assigned to another MALS in support of a deployed squadron designated as CDIs at their parent command may be designated as CDIs by the deployed command without requalification testing provided they are recommended by the cognizant Division Officer and the QA Officer of their deployed unit. CDIs meeting this criteria will only use CDI stamps issued by the deployed unit.

NOTE: **Activities using NTCSS Optimized OMA NALCOMIS shall refer to Chapter 5 for policy regarding the use of CDI stamps with NTCSS Optimized OMA NALCOMIS.**

7.1.7.2.3 During transient or in-flight maintenance; the pilot in command, a designated qualified member of the aircrew, or the senior aircrew maintenance person authorized to sign as inspector will inspect the work performed from a technical standpoint. The inspector will ensure sound maintenance practices were followed and areas where maintenance was performed are free of foreign objects. In the event the discrepancy involves flight safety, a QAR shall reinspect the repairs upon return to home base. This is in addition to any other inspection. Specifically:

a.   During transient maintenance and in the absence of designated QA expertise, the pilot in command is authorized to sign as inspector or designate a qualified member of the aircrew to function in this capacity.

b.   During in-flight maintenance and in the absence of designated QA personnel, the senior aircrew maintenance person is authorized to sign as inspector.

7.1.7.2.4 Division officers are responsible for establishing and maintaining training programs for production personnel involved with QA functions. The responsibility includes training in testing, troubleshooting, and inspection techniques. In addition, steps must be taken to ensure operations requiring certified operators are recognized, and steps are taken to qualify and certify affected personnel.

7.1.7.3 CENNAVAVNTECHTRAU personnel recommended by their Division Officer and endorsed by the FRS MTU Officer as Integrated/Consolidated Maintenance Training CDIs will complete the specific FRS CDI training syllabus under the guidance and control of the FRS QA Officer.

7.1.7.4 QARs, CDQARs, and CDIs shall be designated in writing via OPNAV 4790/12 (Figure 7-5) or ASM equivalent, containing all required information, by the:

a.   MO/FRC equivalent officer for those personnel TAD or permanently attached to the IMA/FRC or Weapons Department.

b.   Weapons Officer for those personnel TAD or permanently attached to the Weapons Department.

7.1.7.5 Deviation to allow the OINC of a detachment to designate QA personnel is authorized, provided the following criteria are met:

a.   The deployment period is in excess of 90 days.

b.   All procedures and requirements for designating QA personnel are accomplished by the detachment.

7.1.7.6 Integrated/Consolidated Maintenance Training CDIs shall be designated by the FRS MO. The FOR block shall read "Integrated/Consolidated Maintenance Training CDI for Work Center ____." Type Wing Commanders shall ensure the generation and endorsement of a letter of agreement between the FRS CO and the CENNAVAVNTECHTRAU OINC delineating organizational responsibilities in matters concerning these special CDIs.

7.1.8 Quality Assurance (QA) Program Management

QA manages the following:

 a. CTPL.

 b. Maintenance Department/Division Safety.

 c. Quality Assurance Audit Program (Chapter 10, paragraph 10.7).

 d. SE Misuse/Abuse.

 e. Aircraft Confined Space Program (Chapter 3, paragraph 3.2.2.3).

 f. NAMDRP (Chapter 10, paragraph 10.9).

7.1.8.1 Central Technical Publications Library (CTPL)

7.1.8.1.1 The CTPL serves two important functions. It provides a central source of up-to-date information for the use of all personnel in the performance of their work, and it is an excellent source of reference information to facilitate personnel training and individual improvement. To perform these functions properly, the Central Technical Publications Librarian must manage all NALCOMIS manuals, desk top guides and all publications affecting the assigned/supported aircraft and related equipment consistent with the maintenance level of responsibility involved. Retention of master copies within the CTPL is optional.

7.1.8.1.2 Management of the CTPL is a function of QA. This function includes the determination of technical manuals required to support the maintenance organization, receipt and distribution control of these manuals, as well as the responsibility for ensuring manual updating throughout the maintenance organization. These responsibilities also apply throughout the entire activity when the Maintenance Department has cognizance of all aeronautical technical manuals for the activity. Internal control, distribution, and access to the NAMP are a responsibility of the Central Technical Publications Librarian. The Central Technical Publications Librarian shall ensure the most current version of the NAMP is readily accessible to all work centers and departments that are affected by NAMP policy and procedures. The Central Technical Publications Librarian shall contact the representative of the local Navy Marine Corp Internet, Ship or Station AIS (as needed) to ensure a NAMP folder is established and available on the local share drive. Refer to NAVAIR 00-25-100 for detailed procedures for establishing and operating a CTPL.

NOTE: All Squadrons, IMAs, and MALS shall have their Central Technical Publication Librarian and one QAR complete the Aeronautical Technical Publications Library management course (D/E-555-0007).

7.1.8.1.3 The Weapons Department requires a TPL containing an appropriate number of those publications necessary to properly perform its maintenance responsibilities for assigned AWSE. This TPL will be a dispersed library of the IMA/FRC CTPL since both departments require many of the same AWSE publications. Requests for publications will be processed and ordered through the IMA/FRC. The Weapons Department Work Center and QA supervisors are responsible for ensuring all necessary technical publications are on hand and readily available in sufficient quantity.

7.1.8.1.4 Technical Publications

7.1.8.1.4.1 The following technical publications are authorized for use in support of operations and maintenance of aeronautical weapon systems and equipment:

　　a.　COMNAVAIRSYSCOM approved military specification technical manuals.

　　b.　COMNAVAIRSYSCOM approved, numbered, and issued commercial off-the-shelf technical publications.

　　c.　Other such commercial technical documentation, when no documentation has been issued by COMNAVAIRSYSCOM, and the requirements of this section have been met.

7.1.8.1.4.2 When a requiring activity is unable to locate the applicable COMNAVAIRSYSCOM approved technical publication or determines such a publication does not exist, the activity shall send an assistance request letter, via the chain of command, to:

　　COMMANDING OFFICER
　　NATEC
　　PO BOX 357031
　　SAN DIEGO CA 92135-7031

A copy shall be sent to the appropriate ISSC/LMTC. In addition to a brief explanation of the problem, previous resolution attempts, and a point of contact, the following information shall be included if applicable:

　　a.　Item nomenclature.

　　b.　PN.

　　c.　NSN.

　　d.　T/M/S.

　　e.　S/N.

　　f.　Manufacturer's name or the CAGE code.

　　g.　Identification of the next higher assembly for example, PN, NSN, and nomenclature.

　　h.　Aircraft or system application.

7.1.8.1.4.3 NATEC (Code 6.8.5) shall respond directly to the originator, with copies to other involved commands, within 30 calendar days of receiving the request for assistance.

7.1.8.1.5 PMS publications consist of checklists, MRCs, SPCs, PMICs, SCCs, and standard rework specifications. These publications provide a basis for planning, scheduling, and complying with scheduled maintenance requirements. The requirements are scheduled with intervals such as calendar time, flight or operating hours, or number of cycles or events based on the predominant failure mode. In instances where conflict exists between PMS publications and other directives, the PMS publications take precedence.

7.1.8.1.5.1 MRCs provide the instructions required for the efficient performance of scheduled maintenance tasks. Each MRC contains the tasks relating to a particular system, subsystem, area, or component using a logical sequence for accomplishment. MRCs identify the recommended rating or MOS, performance interval,

and the work area or zone involved. A listing is provided which identifies SE, consumables, replacement parts, and assistance requirements for task performance. Illustrations, clearances, tolerances, charts, PN, and other pertinent information are included where necessary. MRCs do not include instructions for repair, adjustment, calibration, or procedures for correcting defective conditions. Variations in the arrangement and format of MRCs exist due to periodic changes in the governing preparation specification. Consult NAVAIR 00-500A and NAVSUP Publication 2003 for specific aircraft and equipment PMS manuals provided.

7.1.8.1.5.1.1 The task times indicated on MRCs are provided for use in work planning and scheduling. These times do not include the time spent in preparation, resolving equipment or parts shortages, adverse working conditions, unscheduled maintenance, compliance with TDs, or shortages in numbers or qualifications of personnel.

7.1.8.1.5.1.2 No part of any scheduled maintenance is certified on MRCs. MRCs may be used as often as their condition permits or until superseded.

7.1.8.1.5.1.3 QA MRCs are provided for certain maintenance tasks which, if improperly performed, could cause equipment malfunction or jeopardize the safety of personnel. The QA appearing on MRCs signifies a QA function is required. Local commands, using the guidance in this chapter, shall determine and indicate by annotating on the MRCs whether a QAR, CDQAR, or CDI shall perform the QA functions.

7.1.8.1.5.1.3.1 If the proper performance of a task cannot be determined after the task is completed, a QA inspection shall be required while the task is being performed. Work shall not proceed past the inspection points indicated on the task MRC without the approval of the inspector. For these inspections the notation "QA required" appears on the MRC containing the task.

7.1.8.1.5.1.3.2 If the proper performance of a task can be determined by a visual inspection after the task is complete, a QA inspection is required after the task completion.

7.1.8.1.5.2 Local MRC Procedures

7.1.8.1.5.2.1 Local MRCs are not required for an item of aeronautical SE that has PM requirements published in a MIM, handbook of service instruction, manufacturer's publication, etc. Local MRCs shall only by generated to serve two functions:

    a.   To add new requirements to existing COMNAVAIRSYSCOM MRC decks.

    b.   When PM (including preoperational inspection) is required (as determined by the using activity) and no other information, for example, COMNAVAIRSYSCOM or COMNAVSEASYSCOM MRCs/List of Effective Pages/Maintenance Index Pages, is obtainable which delineates PM requirements.

7.1.8.1.5.2.2 Additional requirements to existing MRCs shall be prepared by inserting local MRCs (Figure 7-6) among the existing cards in the most logical sequence for accomplishment. Number each new card with the preceding card number followed by an alphabetic suffix. For example, cards inserted between cards 12 and 13 would be 12A, 12B, 12C. Identify cards inserted between 12A and 12B with a decimal and numeric suffix, such as 12A.1 and 12A.2. Requirements which do not relate to existing cards may be at the end of the deck and numbered with the next consecutive number. Enter appropriate interval, such as daily, 28 day, or 364 day in the block between CHANGE No. and ELECT PWR. Enter any higher authority reference or material condition generating the local card in the block immediately below. List card numbers of all MRCs on the MRC deck A Card (List of Effective Cards) or a separate 5x8 card formatted like the A Card.

7.1.8.1.5.2.3 Cards for equipment without MRCs are prepared in the manner described above, except they are numbered sequentially without suffixes. Identify the new MRC deck with a publication number made up of

the following elements: activity organization code; general category number of equipment (refer to NAVAIR 00-25-100); 600 to denote MRCs; and a locally assigned sequential number to identify the deck. For example, PK2-16-600-22 would be an electronics local MRC deck and PK2-17-600-23 would be a SE local MRC deck.

7.1.8.1.5.2.4 Local MRCs shall be reviewed and updated annually based on the date block of the local MRC and when there is a change/revision to the appropriate master MRC deck. This review process ensures information, procedures, and references remain current. Additional procedures include:

    a.   Maintenance/Production Control must include local cards when issuing PM requirements.

    b.   Title cards must indicate SE model number/designation/part number of items affected by the deck. Generic nomenclatures such as grinder, metal shears, and radar test bench are unacceptable since they cannot be tracked in NAVAIR 00-500A.

    c.   Information on personnel, power, consumables, tools, PPE, warning and caution requirements shall be included per MIL-DTL-23618H(AS).

NOTE: **Use specific, not generic, information, for example, "wrench, 3/8, open end," not "wrench"; "oil VV-L-800 or equivalent," not "oil".**

    d.   Desired QA level (CDI, CDQAR, or QAR) must be annotated for steps requiring QA actions.

    e.   Technical publications librarians will add card decks to their inventories and treat each deck as a separate publication.

    f.   Whenever NAVAIR 00-500A is revised, all local MRC decks must be reviewed to determine if COMNAVAIRSYSCOM PM requirements have been established.

7.1.8.1.5.2.5 Copies of all new cards or decks, except those directed by higher authority, shall be submitted to the chain of command for review, endorsement, and approval. To facilitate review response, limit submissions to 10 local MRC decks. Each submission shall include a statement outlining the reason for submission, current maintenance procedures, proposed change, how the change will alleviate the problem and whether the submission is intended for local or fleetwide use.

7.1.8.1.5.2.5.1 Squadrons shall submit local MRCs to the cognizant Navy Wing, MAW, or MALS, who will review requirements, authorize use by the originating activity and other intrawing activities (if applicable) and send information copy to cognizant ACC/TYCOM and ISSC.

7.1.8.1.5.2.5.2 I-levels will forward copies to ACC/TYCOM.

7.1.8.1.5.2.5.3 Higher authority, when directing generation of local MRCs, will notify the ISSC.

7.1.8.1.5.2.5.4 All requirements deemed by the Navy Wing, MAW, or MALS to have wider than local Wing application will be readdressed to the ISSC for action, with a copy to the ACC/TYCOM. Forwarding endorsements must include a statement of justification, a positive recommendation, and background information to enable the ISSC to accurately evaluate the request and provide notification of action to be taken. The Navy Wing, MAW or MALS is responsible for keeping the originating activity informed of developments as they occur.

7.1.8.1.5.3 PMICs contain the following:

a. Component/Assembly, Removal/Replacement Schedule, and SRC/ASR, EHR, and MSR requirements for those items having an approved mandatory removal/replacement interval and those items having EHR requirements.

b. Airframe Structural Life Limits. These limits are established and maintained through the Aircraft Structural Life Surveillance Program managed by COMNAVAIRSYSCOM, and are issued via NAVAIRINST 13120.1 (fixed wing aircraft) and NAVAIRINST 13130.1 (rotary wing aircraft).

c. Maintenance Requirements System Index. This index lists the system and MRC number of the requirements to be performed by WUC.

d. Conditional Inspection Listing. This listing contains a brief description of the condition and inspection to be performed, and a reference to the manual or directive containing the detailed requirements.

e. Phase Change Implementation Card. This card lists those requirements to be performed to prevent under inspection of critical components following an update which has resequenced inspection requirements. (Included as required.)

7.1.8.1.5.4 Checklists. The checklist format for inspections provides maintenance personnel with abbreviated requirements for turnaround inspections and preoperational inspections. Inspection requirements are consecutively numbered and sequentially arranged in logical working order.

7.1.8.1.5.5 Sequence Control Cards. SCCs aid the planning and accomplishment of scheduled maintenance and unscheduled maintenance tasks during inspections. SCCs, as an integral part of the scheduled maintenance program, provide a means of controlling the assignment of work and personnel. SCCs indicate which MRCs are to be complied with, the numbers and specialties of personnel required, times during which the separate jobs are scheduled for completion, POWER/AIR OFF or ON conditions required during the work, and the area where the work is to be performed. SCCs have been planned to integrate all required maintenance in logical sequence thereby reducing the total out-of-service time required for accomplishment of maintenance.

7.1.8.2 Maintenance Department/Division Safety

7.1.8.2.1 Effectiveness and safety result when properly trained personnel use properly designed equipment per established procedures under competent and persistent supervision. It requires active participation by all personnel on a daily basis to obtain desired results. Any safety effort must address the aviation and industrial aspects of safety. OPNAVINST 3750.6 contains instructions for maintenance personnel participation in command aviation safety programs. This directive contains instructions for investigating and reporting naval aviation hazards which are not reportable under the NAMP. OPNAVINST 5100.19 and OPNAVINST 5100.23 contain safety instructions for ashore and afloat activities. They cover topics such as hearing conservation, respiratory protection, HMIS, and other topics of general scope. The two instructions and pertinent ACC/TYCOM directives are to be consulted in matters relating to general safety.

7.1.8.2.2 Requirements. QA is assigned overall responsibility for Maintenance Department safety. The intent is not to conflict with any portion of the activity's overall safety program but to assist in coordination of the total safety effort. These responsibilities are to:

a. Disseminate safety posters and literature.

b. Report all hazards, mishaps, and unsafe practices in the department.

c. Conduct safety meetings within the department, at least monthly.

d. Coordinate with the Aviation Safety Officer.

e.   Participate in the activity's safety surveys and stand downs.

NOTE: When the QA Supervisor is unavailable, the senior QAR/CDQAR in OMDs, certain other activities, and detachments with four or less aircraft will be responsible for Maintenance Department Safety.

7.1.8.2.3 When a report is required by OPNAVINST 3750.6, QA will collect and provide maintenance and material data necessary for the preparation of required reports. OPNAVINST 3750.6 contains detailed report preparation procedures. The submission of reports required by OPNAVINST 3750.6 does not negate any of the requirements for submission of reports required by the NAMP.

7.1.9 Quality Assurance (QA) Auditing

7.1.9.1 Auditing is an assessment of the effectiveness of programs managed within the Maintenance Department per Chapter 10, paragraph 10.7. The programs included in the NAMPSOP SHALL NOT have additional instructions written below COMNAVAIRSYSCOM level (with the exception of Local Command Procedures (Appendix D). The NAMPSOP is the controlling instruction for that subject. Programs and processes not covered by a NAMPSOP do not require local command instructions. COs/MOs are responsible for publishing local command procedures per Appendix D to clarify geographic area, T/M/S specific, and command specific details not addressed by the NAMPSOP. This section will only add clarification of local procedures. Wings shall standardize Appendix D for all T/M/S specific details. ACC/TYCOM/Wings shall provide instructions on non-NAMPSOP programs and processes in sufficient detail to preclude the requirement for supplemental instructions below their level. It is the responsibility of the ACC/TYCOM/Wing and CO/MO to ensure CSEC is updated to include auditing requirements for these instructions and local command procedures.

7.1.9.2 QA audits the programs listed in the following paragraphs. The Weapons Department needs to audit only those programs peculiar to the Weapons Department.

7.1.9.2.1 NDI Program. QA will:

a.   Ensure assistance is requested, when necessary, from the supporting IMA/FRC for performance of those NDI tasks beyond the activity's capability.

b.   Monitor compliance with NDI personnel qualification, certification and recertification requirements, safety precautions, and instructions.

c.   Ensure assigned NDI technicians/operators are certified.

d.   Monitor the organization's NDI training program to ensure it is current and comprehensive. Special emphasis should be placed on areas of NDI accomplished by other than personnel assigned NEC 7225/MOS 6044, or a civilian/contractor equivalent.

7.1.9.2.2 Explosives Handling Personnel Qualification and Certification Program. QA shall review individual certifications during work center audits to verify personnel who handle explosive devices while performing maintenance functions are qualified and certified per OPNAVINST 8020.14.

7.1.9.2.3 Aeronautical Equipment Welders Program. QA will:

a.   Monitor compliance with welding personnel qualification, certification/recertification requirements, safety precautions, and applicable technical publications and directives.

b. Verify the work center has sufficient welders certified to perform the different types of welding required. Recommend changes based on existing production and anticipated changes in support of new aeronautical equipment.

c. Visually review every welder's proficiency against the welder's test plate every 90 days. Reviews shall consist of one ferrous and one nonferrous (gas tungsten arc welding only) test plate for each process that the welder is currently certified (except oxyfuel brazing). The QAR shall sign and date the proficiency in the welder's work log.

d. Verify welder personnel physical requirements have been met NAVAIR 01-1A-34.

e. Verify welding spaces meet classification standards per NAVAIR 01-1A-34.

f. Verify that all initially certified welders have satisfactorily completed all OJT requirements per NAVAIR 01-1A-34, prior to the MO's signature.

7.1.9.2.4 Laser Hazard Control Program. QA will monitor the Laser Hazard Control Program as established in OPNAVINST 5100.27/MCO 5104.1.

7.1.9.2.5 Vibration Analysis Program. QA will ensure:

a. Personnel performing vibration analysis are properly trained per applicable MIMs.

b. Vibration analysis is performed as required by applicable MRCs and MIMs.

c. Records of vibration analysis results are maintained and used to highlight trends.

d. Vibration analysis data is submitted to the ISSC when a database for monitoring trends is established. The ISSC will notify the activity and cognizant Type Wing to request the data and to establish the tracking process.

7.1.10 Support Equipment (SE) Misuse/Abuse

7.1.10.1 Proper operation of SE is the key to safe, efficient aircraft, and equipment maintenance. Improper use of SE has resulted in personnel injury, excessive ground handling mishaps, repair, replacement costs, and reduced operational readiness. All personnel operating SE must be fully knowledgeable of operational characteristics, safety precautions, emergency procedures, and be qualified/licensed for designated T/M/S (as required). The use of all transportation equipment and automotive vehicles assigned to the FRC shall be limited to that which is required for the conduct of official business unless health and safety factors are involved.

7.1.10.2 Reporting SE misuse/abuse is an all hands responsibility. Procedures are as follows:

a. Anyone witnessing SE misuse/abuse is expected to prepare and forward an SE Misuse/Abuse form (OPNAV 4790/108) (Figures 7-7 and 7-8) or in the case of FRCs, an equivalent electronic form to the activity or to the appropriate Industrial Plant Maintenance Branch with IMRL reporting responsibilities for the SE item for review and validation. Handwritten forms are acceptable.

b. QA shall assign a control number, prepare an official typewritten report for the MO's/Production Officer's/FRC appropriate officer's signature, forward the signed report to the CO of the command which held custody of the item, and send a copy to the CO of the command to which the offender is attached (if different).

c.   QA shall coordinate with the Industrial OSH Department concerning instances of reported mishaps involving SE operation when SE misuse/abuse results in personnel mishap. FRC will forward the SE Misuse/Abuse report to the Manager/Subcustodian (Project Lead) of the equipment and to the Review Board (if established) of the SBT, department, competency or group where the misuse/abuse occurred. The estimated completion date is expected within 10 days.

d.   QA of the command receiving the report shall conduct an investigation to determine the root cause of the occurrence and provide recommendations to the CO via the MO/Production Officer, or in the case of FRCs, a review board for corrective action.

NOTE: **In cases where the offender's command is different, a joint investigation shall be conducted.**

e.   During the investigation, an analysis of licensing, training, certification, maintenance procedures, safety, and related trends will be conducted and analyzed as potential root causes.

f.   Once the investigation is complete in the case of O-level and I-levels, the QA shall forward the report to the MO/Production Officer of the command which has IMRL reporting responsibility for signature. The FRC Project Lead shall notify the Board that the report is ready for review and follow-up.

NOTE: **FRCs may use review boards to perform follow-up reviews to ensure that the corrective action plan is adequate and was implemented. Upon satisfactory follow-up and review, the Board will incorporate their results into the comments section of the SE Misuse/Abuse or equivalent electronic form and close the report.**

g.   The QA/Review Board shall send a copy of the completed report to the MO/Production Officer of the command to which the offender is attached (if different).

NOTE: **If the offender and witness of the misuse/abuse belong to the command with custody of the item that was misused, the report stays within the command.**

h.   The MO/Production Officer with IMRL reporting responsibility shall return the signed report to QA within 10 working days, with comments, recommendations, and action taken described on the back of the form.

i.   QA shall **A}** retain reports for 2 years and provide copies of the completed report to all concerned activities.

A} NOTE: Electronic archiving authorized.

7.1.10.3 When DOD contractors operate/maintain SE equipment, the government COR shall:

a.   Ensure all contracted personnel comply with this instruction.

b.   Ensure that no contract personnel operates SE equipment without proper training and license.

c.   Report any discrepancy between this instruction and the contract to the FRC Business Office, QA/SE Program Manager.

7.1.11 Aircraft Confined Space Program

The objective of the Aircraft Confined Space Program is to ensure a safe environment is maintained when working on aeronautical equipment fuel cells and tanks. Aircraft Confined Space Program and EA certification requirements are in NAVAIR 01-1A-35. Activities not having a sufficient demand for EA services use the services of the supporting FRC site EA. In addition to providing services within the FRC site, the EA will provide support to those tenant squadrons not having sufficient demand and do not maintain their own EA. Insufficient demand is defined as less than three aircraft confined space requirements in a 6-month period. Technical guidance may be provided by the supporting ship or station EA.

7.2 Quality Programs

7.2.1 Guidelines and Operational Procedures

7.2.1.1 This chapter establishes Quality Program policy guidelines and operational procedures for FRC requirements at all COMFRCs. The term DLQP identifies the collective requirements of this instruction. It does not mean that fulfillment of the requirements is the responsibility of any single organization, function, or person. The CO shall delineate specific organizational responsibilities for accomplishment of these requirements.

7.2.1.2 General. COMNAVAIRSYSCOM and COMFRC embrace the intent and spirit of AIRSpeed and command-wide responsibility for product quality and reliability.

7.2.1.3 Requirements. COMFRC is ultimately responsible for the quality of products produced and services provided under their command. FRC COs shall identify a quality focal point to coordinate the DLQP and advise the COMFRC on all related matters. The FRC area commander will ensure all personnel performing QA functions have sufficient training and expertise, well-defined responsibility, authority, and organizational freedom to identify and evaluate quality problems and to initiate, recommend, or provide solutions.

7.2.1.4 The DLQP shall incorporate the functional requirements of this chapter. Organizational responsibilities, derived from functional requirements, shall be designated by local instructions.

7.2.2 Reliability

7.2.2.1 Reliability is generally defined as the probability that an item will successfully perform its designated function for a specified period of time under specified operational conditions.

7.2.2.2 General

7.2.2.2.1 Naval aviation is dedicated to the application of the RCM concept to in-service and future naval aircraft, engines, aircrew systems, weapon systems, aircraft launch and recovery equipment, and SE. The ultimate goal is to maintain maximum weapon system availability at minimum cost. To achieve this goal, the following objectives have been established:

    a.   To provide a disciplined process which ensures that only technically justified PM tasks are performed by the three maintenance levels.

    b.   To provide a clearly documented data analysis package with the technical justification for all maintenance requirements that will be used as the baseline from which adjustments to the maintenance program can be made for all three maintenance levels.

    c.   To provide a service feedback and a data collection capability to monitor the effectiveness of the maintenance program and an analysis capability to investigate and correct maintenance related problems, to identify hardware design deficiencies, and to document specific resource savings.

    d.   To provide a technical audit trail as budgetary reinforcement for a more credible and justifiable maintenance program.

7.2.2.2.2 A basic tenet of the RCM philosophy is that maintenance cannot improve upon the reliability that is inherent in the design of the hardware; therefore, the hardware, through the RCM decision logic process, should dictate PM requirements.

7.2.2.2.3 The most common form of deteriorated reliability is a change to the maintenance plan over and above that which is technically justified. These changes can start with the original task analysis and progress geometrically through well meaning efforts to do more by both artisan and support functions. The ultimate result is reduced reliability caused by escalated maintenance induced failure and accelerated wear out.

7.2.2.3 Requirements. Maintenance of inherent reliability is accomplished through an FRC closed-loop systems approach. The DLQP provides monitoring, analysis, and specialized knowledge to initiate preventive actions that are effected by engineering, production, and other departments. The following shall be achieved:

   a.   Adequacy of the overall applied maintenance plan, not just the acceptability of individual items, shall be judged through the use of SPC, statistical analysis, and cost analysis.

   b.   Identification of failure modes for elimination during the design process or averting their occurrence in in-service hardware through PM.

   c.   Evaluation of the process and procedural controls which caused or permitted the failure.

   d.   Detection of failure trends and the identification and measurement of problem areas.

   e.   Adequacy of controls for material and component usage in the production process.

   f.   Adequacy of problem solutions and responsibility assignments for preventive actions.

   g.   Follow-up to evaluate the effectiveness of PM actions.

7.2.2.4 FRCs shall maintain a program or programs that constantly check the application of maintenance plans and identify and prevent the introduction of unjustified D-level PM tasks. The program(s) shall be consistent with the RCM philosophy. All departments shall ensure product reliability by the proper application and administration of this instruction. The program shall include all management and technical actions necessary to ascertain adequate confidence that all processed items conform to established reliability requirements.

7.2.3 Control of Incoming Material

7.2.3.1 The policy concerning incoming aeronautical and aeronautical related material control is that there be an FRC-wide awareness of responsibilities and a systematic approach to the control of all requisitioned and contracted material.

7.2.3.2 The contractor or supplier has the overall responsibility for conformance of material. However, all departments have the inherent responsibility for ensuring only those materials conforming to contractual requirements are introduced into FRC products and processes.

7.2.3.3 Requirements

7.2.3.3.1 Source inspected aeronautical material will be inspected to the extent necessary to prevent including nonconforming material into reworked equipment.

7.2.3.3.2 Aeronautical material identified as not source inspected will be inspected upon receipt unless the purchase contract specifies that a contractor's Certificate of Conformance is acceptable.

7.2.3.3.3 Source inspected material received without a Certificate of Conformance or endorsed Material Inspection and Receiving Report (DD 250) will be inspected upon receipt. Material ordered through the Supply System will normally be received with a DOD Single Line Item Release/Receipt Document (DD1348-1). This will be considered evidence that the material has been inspected and accepted.

7.2.3.3.4 Source inspected material will be reinspected whenever quality data indicates unacceptable quality trends.

7.2.3.3.5 Procedures shall be established to:

    a. Receive, inspect as necessary, and route incoming material.

    b. Manage the SDR Program.

    c. Ensure payment for destination inspection of required material is not provided until the quality representative signs the Material Inspection and Receiving Report (DD 250), Order for Supplies or Services Request (DD 1155), or Certificate of Conformance.

    d. Maintain identification of material until used.

    e. Manage the PQDR Program.

    f. Monitor and track warranty and first article exhibits.

7.2.4 Certification Program

7.2.4.1 Certification is documented affirmation that all product characteristics affecting quality conform to applicable specifications and requirements. Qualified personnel shall certify the noted characteristics. This requirement results from the fundamental concept that skilled, qualified, and dedicated personnel shall be responsible for building quality and reliability into their own work.

7.2.4.2 General. Items produced by the FRCs shall be certified, indicating conformance to applicable specifications. Certification authorization will include, but not be restricted to, personnel performing the following functions:

    a. Product Certification.

    b. Examination and Evaluation Certification.

    c. Special Process Operator Certification.

    d. Production Control Certification.

    e. P&E Certification.

7.2.4.3 Requirements

7.2.4.3.1 Personnel qualified to certify will certify only products, processes, systems, and areas for which they are specifically trained and qualified. **R}** Supervisors/non-industrial FRC equivalents are held accountable for the training and qualifying of personnel authorized to accomplish certification. The FRC DLQP shall ensure the adequacy of criteria for qualification using task or skill based qualification processes. The artisan qualification process shall be administered as follows:

    a. **A}** Maintenance of aeronautical equipment shall be performed per technical manuals, engineering directives, and other COMNAVAIRSYSCOM-approved technical references.

    b. **A}** Maintenance may be assigned on a variety of aeronautical equipment within the artisan's trade specialty based on their skill set developed from documented technical training, education, and experience.

c. **A}** Technical skills have many general repair applications and can be competently exercised on multiple types of aeronautical equipment.

d. **A}** Supervisors/non-industrial FRC equivalents shall use ORM principles to establish artisan training requirements for specific aeronautical equipment and maintenance processes that are determined to be highly complex, infrequently practiced, no functional test, single point failure, or required by higher authority or local policy. Supervisors/non-industrial FRC equivalents shall develop such training requirements, to include the consideration of specific qualification standards, when deemed necessary in consult with appropriate engineering, quality, and training resources.

e. **A}** Supervisors/non-industrial FRC equivalents shall assess and continually monitor each artisan's ability and maintenance performance to exercise discretion in prescribing and documenting training in advance of low risk and common maintenance.

7.2.4.3.2 **D}**   .

7.2.4.3.3 **R}** Supervisors/non-industrial FRC equivalents depend on subordinates to build quality into the products. It is not necessary for supervisors/non-industrial FRC equivalents to be qualified in every aspect of work operations performed within their area of responsibility. Technical trade skill knowledge is not required of supervisors/non-industrial FRC equivalents. Certification authority shall not be granted to supervisors/non-industrial FRC equivalents.

7.2.4.3.4 **R}** Personnel granted certification authority shall certify their own work and the work accomplished by others if they have accepted the responsibility. Certification by an artisan is that individual's personal guarantee that all work has been accomplished per specifications. Personnel accepting responsibility for certifying their own work and the work accomplished by others must be:

a. Qualified in the same type of work operations as those they are certifying and for which they are accepting responsibility, for example, an electrician will certify only electrical work accomplished and must be qualified in the specific product, process, system, or area to be certified.

b. Certifying the same type of work operation for another individual who is actually assisting the certifier in the work operation, for example, if it takes two electricians to perform a work operation, then the one who certifies the work document is accepting responsibility for the work accomplished by the electrician who assisted. If a work operation requires multiple trade skills, the work operation will be segregated in such a manner as to allow an electrician to certify for electrical and a hydraulic mechanic to certify for hydraulic.

7.2.4.3.5 Reassigned personnel require an authorization for extension of certification authority. When a certifier is transferred, extension of certification authority shall be approved or disapproved per the **R}** FRC DLQP after it has been absolutely determined that the certifier is thoroughly trained and qualified for the products, processes, systems, or areas he or she will be certifying. When reassigned after being loaned or detailed outside of their designated trade skill for longer than 1 year, employees must also be reevaluated for extension of certification authority.

7.2.4.3.6 The responsible **R}** supervisor/non-industrial FRC equivalent shall:

a. **A}** Use specific qualification standards to ensure technical training is provided for the specific products, processes, systems, and areas the certifier is responsible. Training may be informal, critical task, or formal classroom and shall include the actual use of work documents and technical specifications. Sanctioned training by instruction or electronic media is acceptable. Once established qualification standards have been met, the supervisor/non-industrial FRC equivalent shall request the appropriate certification stamp or SMQ authorization from QA. Upon review that all initial requirements have been fulfilled, QA shall issue the appropriate stamp or SMQ authorization.

b. **A}** Record subsequent added skills or tasks when required, in the FRC system of record after he/she has evaluated the artisan's capability and qualification in that particular skill or task. When specific OJT is required by the Technical Authority (COMNAVAIRSYSCOM or NAWCAD) or the workload review process, it shall be recorded as critical task training.

NOTE: **A} Record skill or tasks only after he/she evaluates the individual's competency in the work operation as it pertains to the product, process, system, or area.**

c. **A}** Maintain an individual qualification record reflecting the training and qualifications of assigned individuals.   Individual qualification records provide a standard means of identifying an artisan's qualifications and training. All artisans involved in the certification program shall have a qualification record to document their certification authority and training. Duplicate paper records are not required if the FRC site is using an electronic training management system or ASM.

7.2.4.3.7 Individual indoctrination and on-going training on the **R}** certification program shall be provided to all personnel granted certification authority. Refresher training will be provided to certified individuals every 4 years and whenever the review of quality data reveals adverse trends.

7.2.4.3.8 **D}**＿＿＿＿＿＿＿＿＿.

7.2.4.3.9 Personnel granted certification authority shall certify that each product and quality characteristic identified on work documents has been satisfactorily completed and conforms to prescribed requirements by affixing an appropriate stamp imprint and date **R}** or electronic password/signature verification used in NALCOMIS (initials or signatures are not acceptable) adjacent to each task or characteristic prior to verification. D-level QA Certification during BCM interdiction by an artisan at the I-level FRC shall be accomplished per paragraphs 7.1.4.2, 7.1.4.5, and 7.1.4.7.3.

7.2.4.3.10 **R}** Movement of an item from one stage of maintenance to the next is authorized if the appropriate characteristic(s) has (have) been certified on the work document. This authority is not extended for verification requirements.

7.2.4.3.11 In all cases where a product, process, system, or area is altered, reworked, entered, or disturbed after original certification, the actions shall be adequately documented. Following completion of the work, it shall be recertified and submitted for reverification, if previously verified.

7.2.4.3.12 Each of the following is considered to be adequate cause for revocation of certification authority:

a. Certification of nonconforming products, processes, systems, or areas when such actions are the result of negligence or serious incompetence.

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b.   Failure to protect the stamp from use by other than the individual to whom assigned. Unauthorized use may be cause for disciplinary action.

c.   Certification of products, processes, systems, or areas not within the qualifications of the certified person's current assignment.

d.   Failure to comply with directives or instructions governing certification actions.

7.2.4.3.13 Procedures shall be established to:

a.   Ensure command-wide indoctrination and understanding of the Certification Program.

b.   Maintain unissued certification stamps in locked storage.

c.   Provide positive control of stamps, including issue and return of stamps due to artisan promotion, resignation, or retirement.

d.   Certify documents of those items or operations considered acceptable for continued service without rework or processing.

e.   Ensure documentation matches items processed and reflects all work completed prior to moving to the next phase of production.

f.   **A}** Document and monitor qualification training accomplished and currency requirements.

7.2.5 Quality Verification

7.2.5.1 Verification is a method of objective evaluation employed to determine and measure the effectiveness of the Certification Program. The term "verification" refers to the determination of product conformance by actual examination, measurement, witnessing of tests, witnessing redundant or concurrent certification, or review of documented objective evidence describing product or quality characteristics and comparison to prescribed quality requirements. Verification is accomplished by personnel who are trained and qualified to perform the QA function.

7.2.5.2 General

7.2.5.2.1 All items produced by the FRCs may be subjected to quality verification. Verification may be applied to the artisan's completion, inspection, and certification of an assigned task and a thorough review of processing work documentation to ensure compliance with all specifications and control of the process. The verification method employed will depend on the point reached in the processing cycle, the type of product, the criticality of the characteristic(s) or product being verified, quality history, and quality control techniques in use, such as SPC, concurrent or redundant certification, NDI, ATE, and special process certification.

7.2.5.2.2 The verification method(s) used by personnel trained to perform the QA function shall consist of one or more of the following categories:

a.   Actual verification (measurement or witnessing of tests) of the product and associated certified work documents. This method is mandatory for all safety of flight/flight critical/critical safety item characteristics and all tasks which require the aircraft to have an FCF per Chapter 3 regardless of whether or not an FCF is flown per type specific NATOPS manuals.

b.   Witness redundant or concurrent certification by a second qualified certifier.

c.   Verify certified work documents attesting to quality conformance and accepting certification that the characteristic(s) or product conforms to quality requirements.

    d. Use product or process surveillance based on an effective audit program and an objective statistical history.

7.2.5.3 Requirements. Products produced and processes used will be subject to verification consistent with the following guidelines:

    a. Type I (Mandatory). This category is assigned to characteristics which would be classified as critical if found defective. Verification of this category is mandatory and shall be accomplished by evaluating the product and work documentation. Sampling of mandatory characteristics is not permissible. Mandatory verification shall be accomplished by methods specified in Chapter 2. QA Officers at FRC sites shall ensure BCM interdicted workload identified as having a Type I verification requirement is performed "ONLY" by an FRC QA Specialist.

    b. Type II (Temporary Mandatory). This category of verification temporarily imposes mandatory verification requirements and may be conducted on high failure rate items, items without objective evidence of good quality, instances where the quality level is suspect or inadequate, or while conducting audits. Temporary mandatory verification may also be imposed and conducted to obtain or verify statistical quality data. Temporary Mandatory verification shall be terminated when the acceptable quality level has been attained or acceptable statistical quality data is obtained. Artisans assigned to FRC sites will not be expected to inspect an I-level technician's performed maintenance; however, I-level FRC QA personnel shall verify the artisan's work when all the following requirements are met:

        (1) Type II requirements established by the FRC are involved.

        (2) The work performed is solely accomplished using an I-level repair manual.

        (3) The I-level has agreed to accept the Type II verification for the D-level repair.

    c. Type III. Sampling and surveillance verifications are modes of verification that may be used independently or in combination to accomplish the verification function when Type I or Type II is not required.

        (1) Sampling verification is essentially a tool which permits reduced verification emphasis. It is most important that the end use of the product, its relative complexity, and such factors as subsequent verification of the product as a "system" be considered.

        (2) Surveillance verification allows the use of reduced verification through the application of an effective audit program. Applicable products and processes are those that display objective quality evidence or a state of statistical quality control using SPC techniques.

            (a) Products must have an acceptable quality history or be in a state of SPC.

            (b) Products selected for surveillance should be systematically audited periodically to ensure quality is maintained.

            (c) If an adverse trend develops, immediately impose Type II verification while analyzing data. After correction of the root cause, reinstate normal surveillance.

        (3) Procedures shall be established to ensure:

            (a) Development, implementation, administration, and monitoring of the verification program.

(b)   Depth of rework decisions provide a product which will meet all engineering and quality requirements.

(c)   Progressive review of work documents to ensure all previous tasks have been certified/verified.

(d)   Conformance to the Navy Calibration Program requirements.

7.2.6 Work Definition and Documentation

7.2.6.1 The consistent production of reliable quality products cannot be expected unless each individual worker knows precisely what is to be accomplished. Definitive work documentation must be provided to production and production support personnel to effectively process an FRC's workload.

7.2.6.2 Work documents provided to certifiers must be specific, clear, and complete. Work documents must be retained.

7.2.6.3 Requirements

7.2.6.3.1 Work documentation shall be arranged to coincide with the production sequence. Space to affix certification and verification stamp imprints, with date of each entry, shall be provided.

7.2.6.3.2 Work documentation shall include appropriate product serial numbers or other unique identification for traceability purposes.

7.2.6.3.3 To conform to authorized technical specifications, definitive work documentation shall identify product and quality characteristics to be certified and, when appropriate, quality characteristics to be verified.

7.2.6.3.4 Completed (certified and, when applicable, verified) aeronautical work documentation shall be retained (as a minimum) as follows:

a.   Aircraft - until completion of the next SDLM or the subsequent completion of a previously completed phase in the PDM cycle, for example, Phase 1 records may be destroyed after completion of all other phases and a subsequent phase 1.

b.   Engines and flight critical safety item components - 2 years.

c.   Non-critical safety item components - 6 months for work documents specifically identified (traceable) to non-critical safety item components transferred from an FRC to a FISC. Work documents traceable to components installed in aircraft undergoing processing, such as SDLM or PDM, should be retained at the FRC with aircraft maintenance records.

d.   Aircraft stricken from Navy inventory - 1 year unless special instructions are received from the authority involved with the strike action. The 1-year period will begin upon receipt of the initial Class A accident message or any other strike report.

7.2.6.3.5 Procedures shall be established to:

a.   Develop and maintain workable methods and procedures to ensure compliance with directed work definition and documentation.

b.   Perform certification actions on each work task for each completed product and quality characteristics processed prior to requesting quality verification.

c. Date certification actions on facility designated work documents at the completion of a work document/task.

d. Revise inadequate work documentation.

e. Provide definitive manual work documentation. Tasks shall be listed separately, capable of being completed in one shift (or less) or in a manner which permits the certifier to certify the whole task.

f. Maintain and operate a central technical publications library.

7.2.7 Quality Characteristics

7.2.7.1 Valid verification of product or process quality requires determining the degree to which the product's inherent or acquired characteristics conform to applicable standards and specifications. To make this determination, product or process characteristics must be adequately identified and documented.

7.2.7.2 Quality characteristics must be integrated on work documentation. Integration of quality characteristics is merely the identification of those product characteristics that:

a. Provide a predetermined qualitative measurement of stated parameters confirming adherence to standards or specifications.

b. If improperly performed, could jeopardize personnel safety or cause damage to, or failure of, equipment.

7.2.7.3 Requirements

7.2.7.3.1 Quality characteristics identified and integrated on work documents shall be written clearly and concisely.

7.2.7.3.2 As work progresses, steps performed are subject to verification. Artisans shall be required to perform necessary corrective action when work performed does not conform to applicable specifications or when the quality is not acceptable.

7.2.7.4 Safety of Flight/Critical Safety Item Characteristics

7.2.7.4.1 Type I mandatory verification will be performed on all flight critical characteristics which are to be integrated into work documents.

7.2.7.4.2 Authorization to remove flight critical characteristics from D-level work documents, MIMs, MRCs, and FCF checklists must be specifically approved in writing by the aircraft ISSC.

7.2.8 Quality Audits and Investigations

7.2.8.1 Quality audits and investigations are essential tools used to comprehensively evaluate factors and conditions affecting product or process quality. They identify potential problems, opportunities for improvement, and stimulate root cause corrective or preventive actions. The objective of quality audits and investigations is continuous improvement of a system or process.

7.2.8.2 Quality audits are independent reviews conducted to compare some aspect of performance with set quality standards for that performance. Audits are usually conducted on a regularly scheduled basis and shall not be conducted solely as a crisis response.

7.2.8.2.1 Quality audits encompass specific products, processes, systems, and facilities. They may be shop, area, or command-wide and are normally scheduled in advance. Audit frequency shall be based on urgency and may be adjusted by the results and statistical defect trend analysis or other quality feedback. Audits may vary in depth and scope as determined by objective quality history and product complexity. Procedures must be established to:

    a. Maintain quality audit records.

    b. Ensure follow-ups are conducted on all documented concerns.

    c. Provide written corrective and preventive actions on documented deficiencies within specified time frames.

7.2.8.2.2 Quality investigations are conducted when a known or perceived problem exists. Quality investigations shall be used for the identification, correction, and prevention of conditions that degrade the quality or reliability of products, processes, or systems.

7.2.8.3 Requirements

7.2.8.3.1 Quality Audits. Any area affecting quality is subject to an audit. Audits may be requested by other FRC departments or higher echelon activities. Quality audits may be conducted by one or more persons depending upon the depth, scope, and complexity. Expert assistance may be requested from other departments as required. Specific written guidelines and standards shall be used to define the audit process.

7.2.8.3.2 The quality investigation is the primary tool for resolving customer reported problems and shall be conducted in sufficient depth to identify all deficiencies and ensure the problem is not repeated.

7.2.9 Quality Analysis

7.2.9.1 Analysis is an essential part of the DLQP. Effective analysis of data from reliable sources is required to understand the system and make decisions for continuous improvement. It requires creativity, initiative, and sensitivity by management if benefits are to be derived. Analysis will provide management with information concerning:

    a. Process capability.

    b. Degree of product conformance.

    c. Source of variation.

    d. Causes of nonconformance.

    e. Corrective action required to eliminate or at least minimize variation.

    f. Methods to achieve continuous improvement.

7.2.9.2 The diagnosis of reasons why products fail is required for defect prevention. Equally vital is evaluation and validation of preventive actions. Acceptance of this premise is essential for improved quality, productivity, and reduced costs.

7.2.9.3 Requirements

7.2.9.3.1 Maximize the use of computerized data processing systems.

7.2.9.3.2 Develop and maintain a database to include internal and external reports and records on product and process quality data.

7.2.9.3.3 Review and analyze the quality database to:

a. Monitor the effectiveness of quality programs.

b. Create constancy of purpose by continually striving to improve quality of products and processes.

7.2.9.3.4 Provide quality data trends and status reports to advise management and other personnel on the quality and reliability of products, processes, and systems.

7.2.9.3.5 Recommend corrective and preventive actions following investigation and analysis.

7.2.9.3.6 Conduct follow-ups to determine the adequacy or effect of implemented corrective and preventive action(s).

7.2.9.3.7 Maintain continuous training in statistical techniques and analysis functions for management and personnel at all levels.

7.2.10 Quality Cost

7.2.10.1 For management to gain a clear picture of the FRC's quality effectiveness and the total cost incurred when a product is reworked, it is necessary that the quality cost component be identified and analyzed. When the magnitude of the quality costs are known, management policies can be initiated that will not only reduce overall rework costs but will do so at a higher quality level. Dual benefits, decreased costs, and increased quality are achieved because of the relationship between the three categories which comprise quality costs. These categories are Failure Costs, Appraisal Costs, and Prevention Costs as defined by COM-NAVAIRSYSCOM (AIR-6.0).

7.2.10.2 The responsibility to control quality cost is facility wide. Determination of quality cost is not only desirable but is an absolute necessity for management to appreciate the interaction of workload, production, and quality.

7.2.10.3 Requirements. All FRCs shall ensure a comprehensive quality cost program is developed, implemented, and administered. As a minimum, procedures shall be established to:

a. Ensure accurate transaction accounting.

b. Identify and eliminate hidden cost areas associated with the quality function.

c. Recommend and implement methods to identify and to optimize quality cost.

7.2.11 Corrective and Preventive Action

7.2.11.1 Corrective and preventive action(s) shall be initiated to resolve identified deficiencies and to prevent recurrence.

7.2.11.2 Corrective action is the resolution of a problem or deficiency. Analysis of quality data is an important function in the process of determining corrective and preventive action. Corrective action is an immediate resolution and may only remedy the cited deficiency. Preventive action inhibits the recurrence of cited deficiencies by identifying and eliminating root causes. Repetitive deficiencies shall be brought to the attention of increasingly higher levels of management until the root cause is eliminated.

7.2.11.3 Requirements

7.2.11.3.1 A continuous and vigorous corrective and preventive action program shall be established. It will include the analysis of internal and external data. Corrective and preventive action will be required when a deficiency is detected in a product, process, or system of the FRC or when the services or products of a command with which the FRC has an existing support agreement are found to be deficient.

7.2.11.3.2 Prompt and thorough corrective and preventive action must be accomplished without compromising quality when deficiencies are reported.

7.2.11.3.3 Reported deficiencies are classified as critical, major, or minor.

7.2.11.3.3.1 A critical deficiency is a defect that judgment and experience indicate is likely to result in hazardous or unsafe conditions for individuals using or maintaining it. Depending upon the product, the defect may prevent functional performance of an aircraft, missile, space vehicle, or major component.

7.2.11.3.3.2 A major deficiency is a defect that is likely to result in the failure or reduced material utility of a unit or product.

7.2.11.3.3.3 A minor deficiency is a defect that is not likely to materially reduce the utility of a unit or product or is a departure from established standards having little bearing on the use or operation of a unit.

7.2.11.3.4 Systems for internal and external quality data collection and analysis shall be implemented and maintained.

7.2.11.3.4.1 In-process or Reprocess Defect Reporting System is an automated database containing documented product deficiencies. An in-process or reprocess document shall be initiated whenever a certified product or process is found to be specification deficient.

7.2.11.3.4.1.1 In-process is a certified task or operation found to be deficient in the certifying shop.

7.2.11.3.4.1.2 Reprocess is a certified task or operation found to be deficient and not classified as in-process. For example, a certified product routed from the certifying shop or requiring certifiers from another area to correct the deficiency, or a certified product found defective in a shop other than the certifying shop.

7.2.11.3.4.2 Process Correction Reporting System is an automated system for the collection of procedural deviations and deficiencies.

7.2.11.3.4.3 External Correction Reporting System is an automated system for the collection of customer reported deficiencies.

7.2.12 Customer Liaison Program

7.2.12.1 The Customer Liaison Program is established to ensure the customer receives a product which satisfies their needs and requirements.

7.2.12.2 Requirements. The FRC's responsibility goes beyond providing a product conforming to specifications. It includes supporting the customer with education, training, and other assistance. Constructive relationships between the FRCs and their customers are an essential link in the AIRSpeed process. Customer feedback is one of the primary means of measuring productivity effectiveness and product quality. Customer satisfaction is the ultimate goal of each FRC. Each FRC shall maintain a customer liaison program that provides periodic on-site contact with its customers, establishes communication links, and encourages feedback.

7.2.13 Material Review Board (MRB)

7.2.13.1 The purpose of the MRB is to systematically evaluate nonconforming material in order to achieve material recovery and savings.

7.2.13.2 General

7.2.13.2.1 The MRB function applies to all command aeronautical material, including SE, for which authorized repair has not been established. The MRB function may apply to material determined to be in critical supply.

7.2.13.2.2 The MRB function does not apply to deficient material reported by NAMDRP.

7.2.13.3 Requirements

7.2.13.3.1 The MRB evaluates material that does not conform to specifications and determines if it can be reclaimed without compromising the quality of the end product. The MRB shall require a cause and preventive action statement for D-level caused nonconformances on MRB forms. Each MRB will be composed of appropriate representatives.

7.2.13.3.2 Material Identification. When material is first discovered to depart from specification or procedural requirements and cannot be processed normally, the material will be identified, segregated, and stored in an identified MRB holding area. If the item is too large to store in the segregated area, it will be appropriately tagged. The DLQP shall include a control system for MRB data which shall be retained for a minimum of 1 year. MRB data is used for analyzing and determining cost savings. Documentation will be reviewed periodically to ensure specification deviations are not repeatedly granted.

7.2.13.3.3 MRB Forms. The MRB forms shall be prepared on all applicable material prior to submission to the MRB.

7.2.13.3.4 MRB Action. MRB action must commence within 10 workdays after preparation of the MRB Form. All members must be present for official MRB action. The MRB shall decide unanimously if the material will be used "as is", reworked, or scrapped. The MRB decisions regarding acceptance of recurring discrepancies shall consider corrective action, number of items involved, and frequency of recurrences. Upon MRB decision that the material can be made acceptable by rework or repair, it shall be reworked or repaired by specific procedures designated or provided by the MRB and submitted to the appropriate level of verification. When the MRB cannot decide unanimously, the MRB Chair shall refer to higher authority for resolution.

7.2.13.3.5 Disposition of Scrapped Material. Material identified for scrap shall be mutilated to prevent reuse, intermingling with conforming material, or future reclamation. FRCs shall develop disposition procedures.

7.2.14 Contracting

7.2.14.1 The increased emphasis on contracting activities requires the establishment of uniform guidelines and procedures to control quality and ensure compliance with FARs and military specifications/military standards when soliciting contracts.

7.2.14.2 General. Contracting for services and supplies requires the cooperation of all departments to ensure accurate contract definition, cost analysis, and development of effective quality requirements. Incorporation of this principle will result in effective contract administration and assurance of quality services and supplies.

7.2.14.3 Requirements. Ensure quality requirements are incorporated in all contracts. Prior to bid solicitation, proper consideration should be given to:

    a.   Appropriate military specifications/military standards.

    b.   Accurate service and supply definitions.

    c.   Organizational efficiency considerations.

    d.   Timetables for services and delivery of supplies.

    e.   Quality requirements.

    f.   Material requirements.

    g.   Facility requirements.

    h.   Manpower requirements (including special skills and qualifications).

7.2.15 Quality Training

7.2.15.1 Inherent in the FRC community is command recognition of a continuing need to provide the capability to satisfy new technical and product requirements and to develop pertinent skills and techniques.

7.2.15.2 Continuous training shall be given to all FRC personnel who directly or indirectly affect the quality of products produced. Training shall agree with the concepts and philosophies of AIRSpeed.

7.2.15.3 Requirements. FRC departments will ensure their personnel are thoroughly trained in the performance of their duties. Training shall include the latest state-of-the-art processes, techniques, and procedures. Proper orientation of personnel in the functional responsibilities of each and every department within the FRC will ensure an understanding of their responsibilities within the DLQP.

7.2.16 D}_____.

7.2.17 Aircraft Battle Damage Repair (ABDR)

ABDR encompasses maintenance performed only under combat conditions. The work is accomplished by personnel from all three levels of maintenance using temporary, innovative repair techniques to restore combat capability in a short time frame using substitute materials and procedures. ABDR recognizes other than "factory standard" specifications and relies primarily on technicians and equipment currently available within the battle zone and as augmented by D-level ABDR personnel. The effective use of ABDR in a combat situation can be a key factor in its eventual outcome.

7.2.18 Other Programs and Reports

7.2.18.1 Personnel assigned responsibility for the quality function(s) shall ensure the effectiveness of cognizant programs and reports in other chapters of this instruction.

7.2.18.2 These programs and reports include but are not limited to:

    a.   Aircraft Discrepancy Reporting.

    b.   Quality Deficiency Reporting.

    c.   Special Process Certification Licensing Program.

    d.   **A}** <u>Vibration Analysis Program.</u>
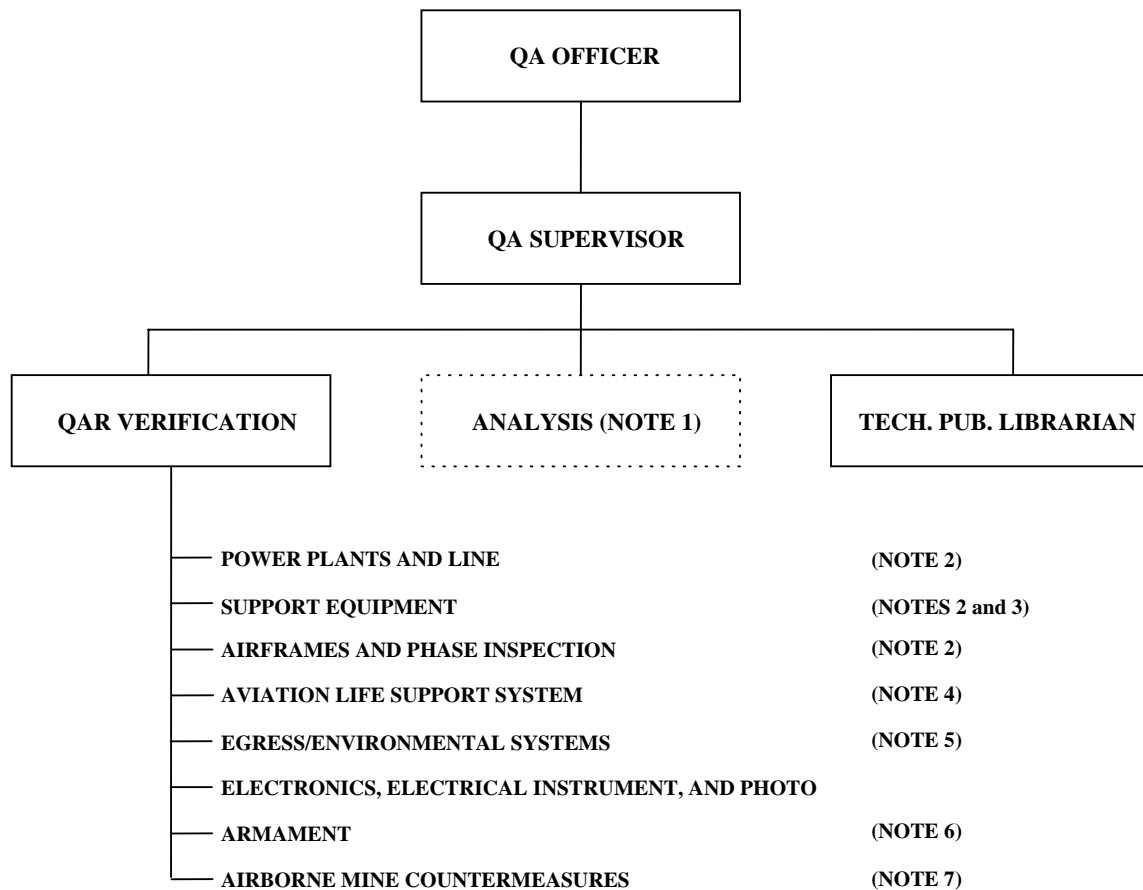
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                        │        QA OFFICER        │
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    — **POWER PLANTS AND LINE**   **(NOTE 2)**

    — **SUPPORT EQUIPMENT**   **(NOTES 2 and 3)**

    — **AIRFRAMES AND PHASE INSPECTION**   **(NOTE 2)**

    — **AVIATION LIFE SUPPORT SYSTEM**   **(NOTE 4)**

    — **EGRESS/ENVIRONMENTAL SYSTEMS**   **(NOTE 5)**

    — **ELECTRONICS, ELECTRICAL INSTRUMENT, AND PHOTO**

    — **ARMAMENT**   **(NOTE 6)**

    — **AIRBORNE MINE COUNTERMEASURES**   **(NOTE 7)**

NOTES

1. If operating with VIDS, Analysis remains a function of QA. **Chapter 5** lists responsibilities.
2. Collateral duty billet within QA.
3. CDQAR required for command utilizing an SE division.
4. OMAs may designate a permanent CDQAR for the ALSS billet.
5. Only for those OMAs with ejection seats.
6. OMAs which have minimal ordnance delivery in their assigned mission may designate a permanent CDQAR.
7. Only in HM squadrons.

Figure 7-1: O-Level Maintenance

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                        │    QA SUPERVISOR    │
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    │  QAR VERIFICATION   │              │ TECH. PUB. LIBRARIAN │
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              ├──── POWER PLANTS
              │
              ├──── AIRFRAMES
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              ├──── AVIATION LIFE SUPPORT SYSTEMS    (NOTES 1, 2, and 3)
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              ├──── SUPPORT EQUIPMENT
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              ├──── AVIONICS/PME
              │
              └──── ARMAMENT EQUIPMENT               (NOTE 4)
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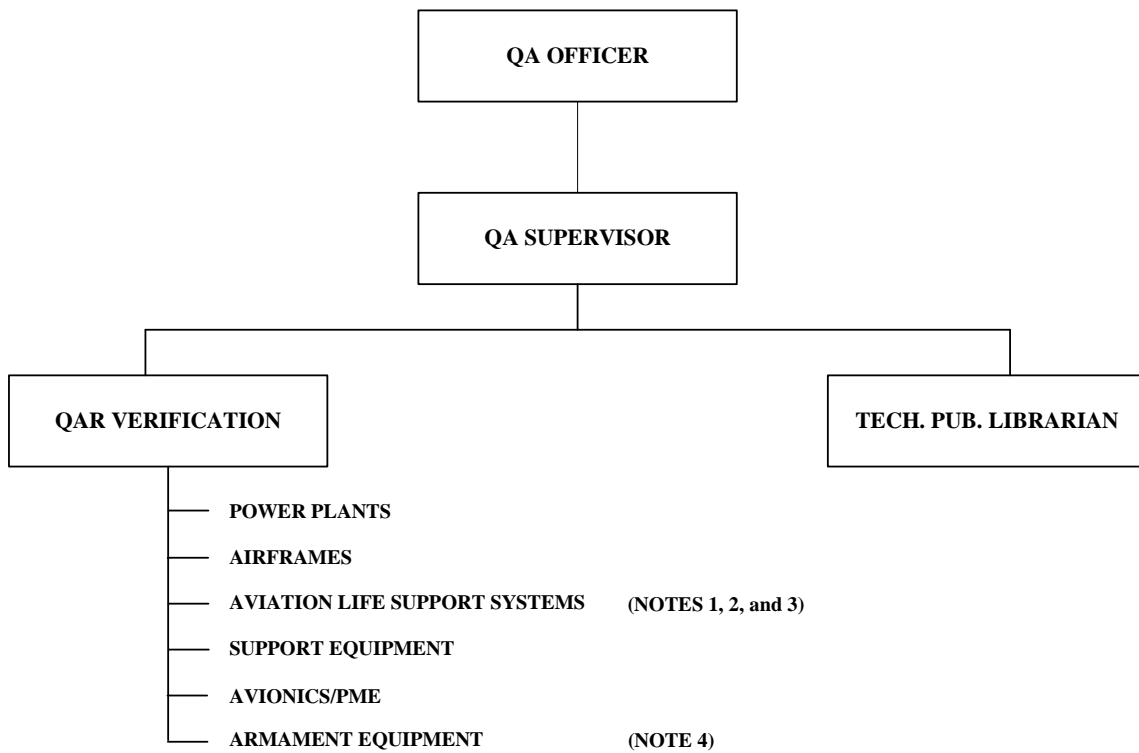
NOTES

1. **Those IMAs with an established ejection seat shop will also assign an egress and environmental specialist.**
2. **Oxygen and nitrogen generating facilities may designate a permanent CDQAR for oxygen and nitrogen generating related QA functions.**
3. **Activities not supporting parachutes or oxygen systems may designate a permanent ALSS CDQAR.**
4. **Activities having a minimal ordnance involvement may designate a permanent armament CDQAR.**

Figure 7-2: FRC Site Maintenance

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                    │     QA OFFICER      │
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                              │
                    ┌─────────────────────┐        ┌─────────────────────┐
                    │   QA SUPERVISOR     │────────┊  ANALYSIS (NOTE 1)  ┊
                    │     (NOTE 5)        │        └┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┘
                    └─────────────────────┘
                              │
                    ┌─────────────────────┐
                    │  QAR VERIFICATION   │
                    └─────────────────────┘
                              │
```

—— POWER PLANTS	CDQAR (NOTE 2)
—— AIRFRAMES	CDQAR (NOTE 2)
—— AVIONICS	CDQAR (NOTE 2)
—— LINE AND SE	CDQAR (NOTE 2)
—— AVIATION LIFE SUPPORT SYSTEMS	CDQAR (NOTE 2)
—— ARMAMENT	CDQAR (NOTE 3)
—— EGRESS/ENVIRONMENTAL SYSTEM	CDQAR (NOTES 2 and 4)
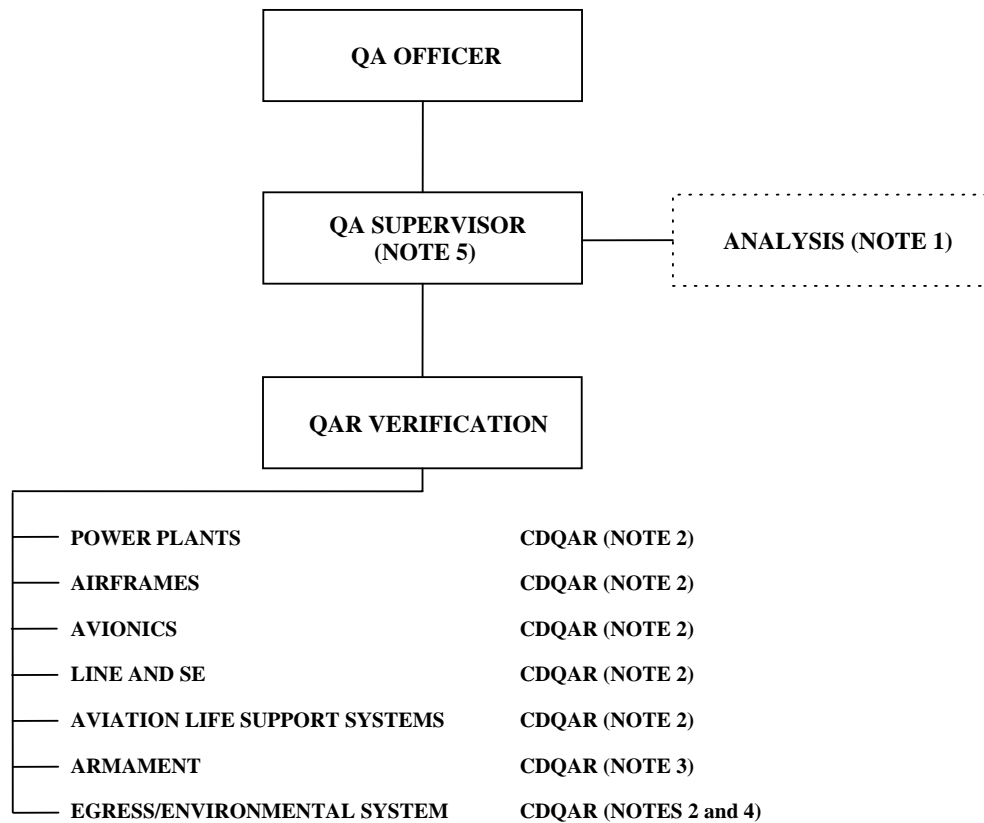
TECHNICAL PUBLICATIONS LIBRARY (ASSIGNED COLLATERAL DUTY TO OTHER STAFF DIVISION)

NOTES

1. **If operating with VIDS, Analysis remains a function of QA. Chapter 5 lists responsibilities.**
2. **Permanent assignments with this organization structure.**
3. **Only those activities whose assigned mission includes handling and delivery of ordnance and armament other than cartridge actuated devices or small arms.**
4. **Required for activities with ejection seats.**
5. **The QA supervisor shall be assigned collateral duty as Maintenance Department Safety Coordinator.**

Figure 7-3: OMDs and Certain other Activities and Detachments with Four or Less Aircraft

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                        ┌─────────────────────┐
                        │     QA OFFICER      │
                        └─────────────────────┘
                                  │
                        ┌─────────────────────┐
                        │    QA SUPERVISOR    │
                        └─────────────────────┘
          ┌───────────────────────┼───────────────────────┐
┌───────────────────┐   ┌·····················┐   ┌───────────────────────┐
│  QAR VERIFICATION │   :  ANALYSIS (NOTE 1)  :   │  TECH. PUB. LIBRARIAN │
└───────────────────┘   └·····················┘   └───────────────────────┘
          │
          ├──── POWER PLANTS
          ├──── AIRFRAMES AND PHASE INSPECTION
          ├──── AVIATION LIFE SUPPORT SYSTEMS        (NOTE 2)
          ├──── SUPPORT EQUIPMENT
          ├──── AVIONICS/PME
          ├──── ARMAMENT EQUIPMENT                   (NOTE 3)
          └──── LINE (WHEN COMBINED IMA AND OMD)
```

NOTES

1. **If operating with VIDS, Analysis remains a function of QA. Chapter 5 lists responsibilities.**
2. **Activities not supporting parachutes or oxygen systems may designate a permanent ALSS CDQAR.**
3. **Activities having a minimal ordnance involvement may designate a permanent armament CDQAR.**

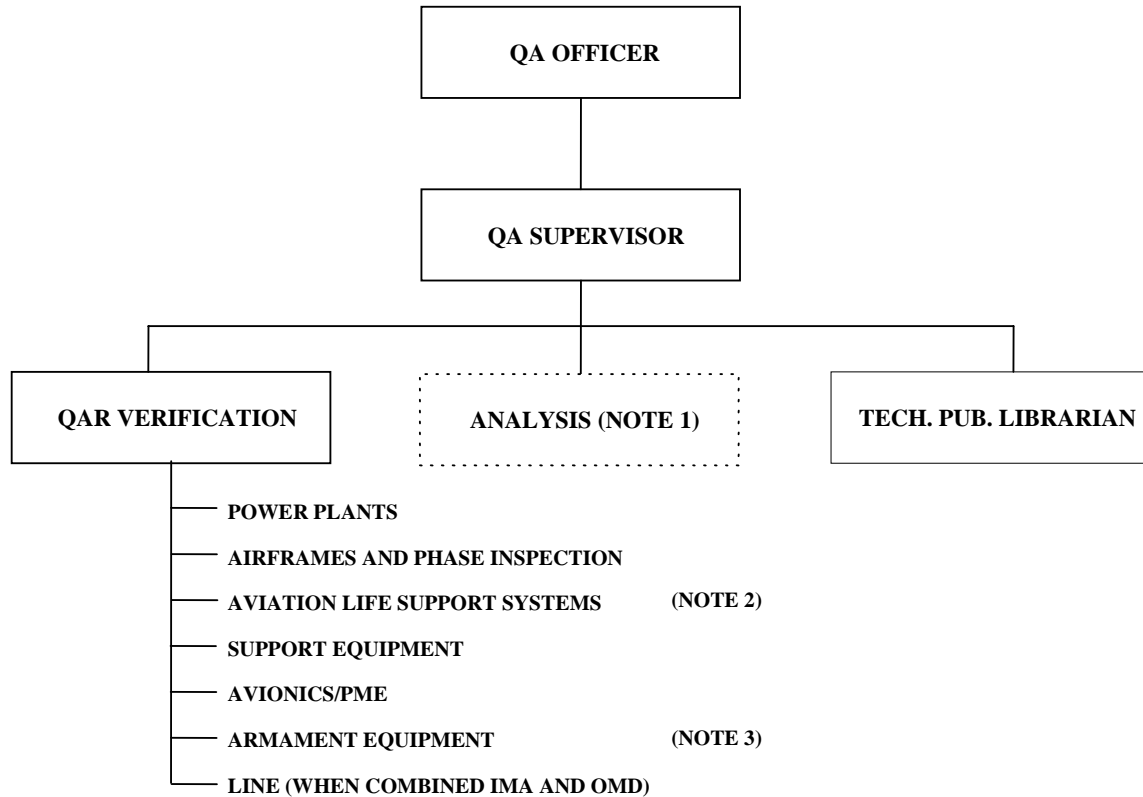**Figure 7-4: Combined OMDs, FRC Sites, and Aircraft IMAs (Afloat)**

OPNAV 4790.2E

QUALITY ASSURANCE REPRESENTATIVE/INSPECTOR
RECOMMENDATION/DESIGNATION

CANDIDATE NAME	RATE

I. DIVISION OFFICER RECOMMENDATION

In accordance with the current OPNAVINST 4790.2 the above named person is recommended for:

☐ QAR　　　　　　　☐ CDQAR　　　　　　　☐ CDI

FOR: (AIRCRAFT / SYSTEM / WORK CENTER / ETC.)

DIVISION OFFICER TYPED NAME AND RANK	SIGNATURE	DATE

II. QUALITY ASSURANCE/ANALYSIS OFFICER ENDORSEMENT

The candidate has been examined in accordance with the current OPNAVINST 4790.2 and has passed all requirements satisfactorily. Recommend approval.

QA/A OFFICER TYPED NAME AND RANK	SIGNATURE	DATE

III. MAINTENANCE OFFICER ACTION

☐ DESIGNATED　　　　　　　☐ NOT DESIGNATED

MAINTENANCE OFFICER TYPED NAME	SIGNATURE	DATE

IV. DESIGNEE RESPONSIBILITY

I UNDERSTAND MY RESPONSIBILITY AS SET FORTH HEREIN:

"When performing inspections, I am considered to be the direct representative of the Commanding Officer for ensuring safety of flight of the item concerned. I will not permit factors, such as operational desires, maintenance consideration, personal relations or the approach of liberty to modify my judgment. By signing an inspection report, I am certifying upon my own individual responsibility that the work involved has been personally inspected by me, that it has been properly completed and is in accordance with current instructions and directives; that it is satisfactory; that any related parts or components which may have been removed by the work are properly replaced and all parts are secure; and that the work has been performed in such a manner that the item is completely safe for flight or use."

CANDIDATE TYPED NAME AND RANK	STAMP NO.	SIGNATURE	DATE

OPNAV 4790/12 (REV. 8-90)　　　S/N 0107-LF-010-5700　　　**Original to:**　　　　　**Individual**
　　　　　　　　　　　　　　　　　　　　　　　　　　　Copy to:　　**Quality Assurance/Analysis Officer**
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Division Officer

Figure 7-5: Quality Assurance Representative/Inspector Recommendation/Designation
(OPNAV 4790/12)

MAINTENANCE REQUIREMENTS CARD   OPNAVINST 4790.2E

CARD			CHANGE No.		ELEC PWR
	DATE				HYD PWR
WORK AREA/ZONE	C R S N	TIME	RTG No.	MOS No.	COND AIR

NAVAIR 4790/3 (REV. 10/90) (FRONT)   NSN 0102-LF-011-0400   PREVIOUS ISSUES OF THIS FORM ARE OBSOLETE

Figure 7-6: Maintenance Requirements Card (NAVAIR 4790/3)

SUPPORT EQUIPMENT MISUSE/ABUSE		CONTROL NO.	
OPNAV 4790/108 (6-81) S/N 0107-LF-047-9550			

FROM	TO

THE FOLLOWING INFORMATION IS SUBMITTED IN REGARDS TO A REPORT OF MISUSE/ABUSE:

PERSON WHO MISUSED/ ABUSED EQUIPMENT	NAME		RANK/RATE
	ORGANIZATION/UNIT		SE LICENSE NO.
			GOVT OPERATOR LICENSE NO.

LOCATION AND EQUIPMENT INVOLVED	LOCATION	TYPE EQUIPMENT PN/FSN	TIME
			DATE
		EQUIPMENT SERIAL NO.	JCN

NARRATIVE DESCRIPTION

PERSON CITING MISUSE/ ABUSE	NAME	RANK/RATE
	ORGANIZATION/UNIT	

WAS SE LICENSE CONFISCATED? IF YES, LICENSE IS BEING HELD BY:	☐ YES ☐ NO	REMARKS

SIGNATURE AND TITLE OF REPORTING OFFICIAL	DATE

Figure 7-7: Support Equipment Misuse/Abuse (OPNAV 4790/108) (Front)

OPNAV 4790/108 (6-81) (BACK)

FIRST ENDORSEMENT	DATE

FROM:

TO:

VIA:

SUBJ: MISUSE/ABUSE

1. ACTION TAKEN / RECOMMENDATIONS:

SIGNATURE AND TITLE

Figure 7-8: Support Equipment Misuse/Abuse (OPNAV 4790/108) (Back)

Y- Code Report Number: _____   Date: _____

A. AMSU Action: Notify Quality Assurance and Production Control.

B. Quality Assurance Action: Screen component and documents, determine Y-Code validity, and assign report number.

Previous JCN: _____   Previous BUNO: _____   Previous Meter: _____

Previous Discrepancy: _____

_____

Previous Corrective Action: _____

_____

Date Last RFI: _____   Previous CDI/CDQAR/QAR: _____

C. AMSU Action:

Work Center: _____

P/N: _____   S/N: _____   WUC: _____

Nomenclature: _____   BUNO: _____   Meter: _____

JCN: _____   MCN: _____   DDSN: _____

Discrepancy: _____

_____

D. Work Center Action:

Present Corrective Action (List specific details): _____

_____

Technician: _____   CDI: _____   W/C Supervisor: _____

E. Quality Assurance Action: Retain this completed form for one year.

QA action taken to prevent reoccurrence: _____

_____

QAR: _____   QAO: _____

F. Forward copy of completed form to inducting activity QA and last processing activity (if different).

Figure 7-9: Y-Code Process Form